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# THE EDINBURGH MEDICAL AND SURGICAL JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

MEDICINE, SURGERY, AND PHARMACY.

VOLUME NINETEENTH.

1823.

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EDINBURGH:
*Printed by the Heirs of D. Willison,*
FOR ARCHIBALD CONSTABLE AND COMPANY, EDINBURGH;
HURST, ROBINSON AND COMPANY, LONDON;
AND JOHN CUMMING, DUBLIN.

1823.

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# NOTICES TO CORRESPONDENTS.

Communications have been received from Drs Barnes, Brown, A. Wilson, and S. W., Messrs G. N. Hill, Mathews, Newstead, Cockburn, Edmonston; the last too late for the present Number.

The following Publications have been transmitted to us:—

A System of Anatomical Plates, folio; with Descriptions, and Physiological and Pathological Observations, 8vo. By John Lizars, F.R.S., &c. Edinburgh, 1822.

Remarks on the Epidemic Yellow Fever which has appeared at Intervals in the South of Spain, since 1800. By Robert Jackson, M.D. 8vo. London, 1821.

Select Dissertations on several Subjects of Medical Science. By Sir Gilbert Blane, Bart., F.R.S.S., &c. and Physician to the King. 8vo. London, 1822.

Observations on the Utility and Administration of Purgative Medicines, &c. By Ja. Hamilton, M.D., Fellow of the R. Col. of Physicians, &c. 7th Edit. 8vo. Edin. 1823.

The Way to preserve Good Health, &c.; with a Treatise on Domestic Medicine. By Robert Thomas, M.D. 8vo. London, 1822.

A Treatise on the Epidemic Puerperal Fever of Edinburgh, 1821-22. With an Appendix, containing the Essay of the late Dr Gordon on the Puerperal Fever of Aberdeen in 1789. 90, 91, 92. By Willliam Campbell. M.D. 8vo. Edin. 1822.

A Treatise on the Disease termed Puerperal Fever, illustrated by numerous Cases and Dissections. By John Mackintosh, M.D. 8vo. Edinburgh, 1822.

A New View of the Infection of Scarlet Fever, illustrated by Remarks on other Contagious Disorders. By William Macmichael, M.D. F.R.S. 8vo. Lond. 1822.

A Practical Essay on Diseases and Injuries of the Bladder, (the Jacksonian Prize Essay for 1821). By Rt. Bingham, Fellow of the R. C. of Surgeons. 8vo. Lond. 1822.

A Treatise on the Materia Medica, intended as a Sequel to the Pharmacopœia of the United States. By Jacob Bigelow, M.D. 8vo. Boston, 1822.

A Treatise on the Morbid Respiration of Domestic Animals, &c.; with the most approved Treatment. By Edward Causer, Surgeon, &c. 8vo. Glasgow, 1822.

Lectures on the Elements of Botany. Part I. Anatomy of the Organs concerned in the Growth, &c. By Anthony Todd Thomson. Vol. I. 8vo. Lond. 1822.

An Inquiry into the Action of Mercury on the Living Body. By Joseph Swan, Member of the Royal College of Surgeons. 8vo. London, 1822.

Anatomical and Physiological Commentaries. By Herbert Mayo, Surgeon and Lecturer on Anatomy. No. I. August, 1822. 8vo. London, 1822.

Inquiry respecting Mr Charles Whitlaw's Practice in Scrofula and Cancer; and the Propriety of instituting an Asylum, &c. By A. Rennie, Surgeon. 8vo. Lond. 1822.

Observations on Cruritis or Phlegmasia Dolens. In a Letter to John W. Francis, M. D., Professor of Obstetrics, University of New-York. By David Hosack, M.D., Professor of Institutes of Medicine, ibid. 8vo. New-York, 1822.

Observations on the Use of Emetics in Constipation of the Bowels; in a Letter to John B. Beck, M.D. By David Hosack, M.D., &c. 8vo. New-York, 1822.

Report of the Denbigh General Dispensary and House of Recovery for 1818-19, and 1820. 12mo. Denbigh, 1821.

The Edinburgh Student's Guide, or an Account of the Classes of the University, arranged under the Four Faculties. 12mo. Edinburgh, 1822,

The Medico-Chirurgical Review. No. XI. for December 1822. By James Johnson, M.D., Member of the Royal College of Physicians, London.

Researches respecting the Medical Powers of Chlorine: With a New and Efficacious Mode of applying this Agent. By Wm. Wallace, M.R.I.A. 8vo. Lond. 1822.

Friderici Tiedemann Anatomes et Physiologiæ in Acad. Heidelbergensi Professoris Icones Cerebri Simiarum et quorundam mammalium. Fol. Heidelbergæ, 1821.

Friederici Guliel. Oppenheim, Diss. In Med. sistens experimenta nonulla circa vitam arteriarum, et circuitum sanguinis per vasa collateralia. 4to. Mannheimii, 1822.

Martinus Steinthal. Diss. In Med. de Menstruorum tam normali quam abnormi decursu. 8vo. Berlini, 1821.

Car. Frid. Heusinger, Commentatio semeiologica de variis somni vigiliarumque condionibus morboris earumque diagnosi et prognosi dignitate. 8vo. Isenaci, 1820.

Abhandlung über das vermeintliche Bärenartige Faulthier—von Friedrick Tiedemann, corresp. Mitglied des Französ. Instituts. 4to. Heidelberg, 1820.

The Dublin Hospital Reports and Communications. Vol. III. 8vo. Dublin, 1822.

On the Principles of Inflammation and Fever. By C. E. Lucas, M.D. Lond. 1822.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. JANUARY, 1823.

# PART I.

## ORIGINAL COMMUNICATIONS.

### I.

### *Observations on the Epidemic Cholera Morbus of the East Indies.*

By JAMES RANKEN, M. D. of the University of Edinburgh, and Member of the Royal College of Surgeons of London.

THE substance of the following Essay was contained in an Official Report which the author had to prepare, in conformity with a general requisition of the Bengal Medical Board, in November 1818. It in consequence relates chiefly to the phenomena of cholera morbus, as they appeared in the Principality, and in the town of Jeypore, where he then resided. Some few additions and alterations were made afterwards, as the result of subsequent experience in various parts of India, where the disorder assumed always the same form.

Having had little opportunity of consulting other members of the profession on this subject, I can offer only an exposition of my own practice and opinions in treating the disease: And the medical world will, I doubt not, receive with indulgence any attempt to illustrate the nature of an epidemic which still prevails, after raging for five years, and is calculated to have destroyed two millions of British subjects.

The cholera morbus had carried off a great number of the inhabitants of Delhi during the preceding months, when, apparently following the course of the wind over a tract of 200 miles, it appeared in the town of Jeypore about the end of August, soon after the cessation of unusually heavy rain. On the 12th of September, as it began to abate in the city, the disease first attacked the troops in a detached camp, containing at least 15,000 natives, besides a company of European artillery; but of the latter only one man was affected. The ground of this encampment was somewhat damp, and the neighbourhood is covered with very long reeds. These two places are twenty miles distant from each other; and it is remarkable, that the surrounding villages, with the rest of the principality, remained entirely free from the calamity. According to the daily reports of the Medical Staff, to which I have had access, 140 men died between the 17th of September and the 2d of October, when the mortality ceased; and within this period 1514 patients were admitted into the hospitals. I believe that the extent and fatality of the sickness were proportionally much less in the town; but no account of the loss of lives which it occasioned was kept there by public authority, nor is the number of inhabitants known. The sufferers, with few exceptions, belonged to the humblest class, who are generally half starved, and almost naked.

Rice is here a luxury of the great; but the various kinds of grain and pulse common to the rest of India, are in use by the people at large. It is to be observed, likewise, that the Rajpùts, who form a great majority in this province, being less scrupulous than other Hindùs, eat the flesh of the deer, and even of the wild hog.

The British residents in Rajputana at this time occupied a garden house between the camp and Jeypore, not far from the town; and it happened, that the only men of his escort who were taken ill had been, a little while before, among the troops that were affected. The brute creation did not altogether escape the sickliness of the period; many camels and goats, in particular, having died of violent diarrhœas and other ailments. The complaint, after gradually attaining its height, and apparently subsiding by similar degrees, disappeared with the rainy season, and was succeeded by severe intermittent fevers, which indeed had prevailed extensively during its continuance.

*Symptoms.*—Since it is sanctioned by established custom, I should not hesitate, as some have done, to give the name of Cholera to this epidemic, notwithstanding the absence, in many instances, of *bile*, the appearance of which I consider the effect, and not the cause, of it.

The descriptions of authors, likewise, such as Celsus, Sydenham, Cullen, seem perfectly applicable to the disease under consideration. The symptoms are infinitely various in degree, though perhaps never in kind, except from some internal complaint, or other casual agency. In all the cases which I had an opportunity of seeing, the disorder was preceded by general lassitude, frequently ending in shivering, resembling an ague fit. Then follow, often immediately after eating, pains of the belly, with sickness at stomach, succeeded by vomiting and purging, but sometimes the former only. Cramps or convulsive motions are perceived in the muscles, particularly of the legs and arms. The eyeballs sink into the sockets; the extremities grow cold; and the skin, clinging as it were to the bones of the face, gives it those ghastly appearances which constitute the *facies hippocratica.* In this stage, the pulse, feeble from the beginning, is seldom perceptible at the wrist. After the undigested food, the natural secretions of the first passages are thrown up; and when the disease, or the patient's life, lasts long enough, bile is at length discharged. The thirst which commonly attends evacuations of the stomach, is very urgent in cholera. There is, at the same time, a burning sensation within the epigastric region, while it feels hot to the touch externally, and is not unfrequently the seat of agonizing pains. If the progress of the disease be not arrested, the vital powers get exhausted, and the vomiting ceases. This event being the consequence of extreme debility, is rapidly followed by the usual signs of approaching death.

Such may be considered the worst form of the epidemic. It is on some occasions so mild, that the patient is in little danger, unless from the sinking of his strength under repeated attacks. But, on the other hand, it is certain that many men died, as all believed, of the same malady, who, falling on the ground, expired almost instantly, without exhibiting what are usually reckoned the diagnostic symptoms. This fact seems analogous to what Sydenham relates of the Plague, which "sometimes, though rarely, is not preceded by any perceptible fever, and proves suddenly mortal."

*Remote Causes.*—The salubrity of a climate has little dependence on fixed temperature. Where the vicissitudes of the atmosphere, however uncertain and numerous, are unremitting, the people enjoy health in an equal degree with those of other countries, in which the changes are few and regular. The healthiness of either climate, therefore, seems to arise from the permanency of its characteristics, rather than from any peculiar qualities of the weather. Were the equable summer of Attica, for instance, and the variable one of England, to interchange scenes, sickness would follow in both countries. On these principles, I would impute the cholera morbus chiefly to that irregularity of the seasons which prevailed at its commencement, and has continued ever since.*

Rain, instead of appearing during four months only after the hot winds, has been falling at all times of late in greater or less quantity. The last cold season here was unsettled, wet, and unusually mild. A drought had occurred in autumn for several years past; but between the middle of June and the end of September of the present year, more rain fell than any one ever remembered to have seen before during these months. This variation may be reckoned a relative cause; while the nature of the change was in itself deleterious also.

The action of heat on the moisture thus supplied in these latitudes, must promote very extensively the decomposition of vegetable matter, and all decaying substances; from which the exhalations of an Indian sun will, by debilitating the body, predispose it to disease. Supposing the same agency to injure vegetable life too, the principal food of Hindùs may be thus rendered deficient in nutriment, or noxious in quality. Where the atmosphere is farther polluted by much animal respiration, and still more if all the foregoing causes concur at one place, we shall expect to find there a corresponding degree of the epidemic.

Cholera morbus raged more violently in Delhi than in this town. The people of the former, situated near the muddy bed of the Jumna, are crowded together in narrow lanes, which have not been visited by untainted air since they were built.

The inhabitants of Jeypore, the only city here, live in wide airy streets, and on a sandy soil, where, as the naked rocks, composing numerous small hills, get heated above the temperature of the plains, the surrounding medium is kept constantly in motion. Again, this place and the British camp were the only spots throughout the territory in which the disorder appeared. When the hospitals became full, those sepoys who assisted the sick were observed to be more liable to it than their comrades in the lines. The detachment finally divided into small parties forming separate encampments, and selecting always the driest ground. The disease then, from whatever cause, began to decline. The same plan of separation had been successfully adopted last cold season in the centre division of the grand army.

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* The same irregularity continued at the time of my departure from India in May 1820.

It is publicly stated by Dr Tytler, that the sickness was stopped in the district of Jessore by the prohibition of bad rice, which he considers of an acrid quality. This statement has never, to my knowledge, been invalidated; but, independently of the fact, I entertain no doubt that any unwholesome diet, by deteriorating the system, will establish a predisposition to the epidemic.

*Proximate Cause.*—In that state of debility already described as the incipient stage of cholera, the smaller vessels of the circumference becoming unequal to the propulsion of their fluids, almost the whole circulating mass accumulates progressively in the central trunks, and in the abdomen, chest and brain. It is in consequence that the extremities shrink, the limbs grow cold, and they are seized with spasms; an occurrence often observable in an animal bleeding to death. The soft texture of the internal viscera, on the contrary, is distended by the vast influx of blood; whence the secretions of the liver and intestines increase. The substance of the stomach and alimentary canal being thus overcharged, their inner surface acquires the highest degree of irritability. In such a condition of these organs, it appears probable that their own fluids may occasion the phenomena of the disease;* but if any foreign matter, especially of an acrid or hurtful nature, be swallowed, it will readily excite the disorder, or, when previously begun, augment its violence.

Without attempting, here, to account for different degrees of the same cause producing effects that differ in kind, I may assume a fact, which is often admitted both in Therapeutics and Pathology. But the worst symptoms of cholera morbus are nearly identified with those of other general diseases, which terminate in gradual exhaustion of the vital powers. In some of them, the stomach and bowels are preternaturally active, while the rest of the system is verging to extinction; and convulsive motions of the limbs frequently attend the recession of the blood. The history of fever, the effects of poison, of inanition from hunger, and even of slow hemorrhages, seem all confirmatory of these opinions. Whether brought on by the direct or indirect action of morbiferous qualities, the final loss of energy, in all of them, is productive of symptoms similar or equivalent to those arising from the proximate cause of cholera.

*Cure.*—From the foregoing positions, the most powerful stimulants are indicated as the means of cure; and of these, tincture of opium is perhaps the best remedy. A hundred drops of it, taken on the first accession of the vomiting, will often render a repetition unnecessary. I would, in general, repeat the dose as frequently as it is immediately rejected. Where it has remained on the stomach too, without allaying all the distressing symptoms, I have given the above quantity three times in an hour with ultimate success. I never knew small doses to have any good effect. A little wine or spirits should be drank at short intervals, to prevent the great depression which is apt to follow the excitement of opium. The thirst attendant on cholera, and increased by this medicine, may be somewhat diminished, at the same time, by adding two or three ounces of tepid water to the spirits of wine. It is not advisable to give more at a time. The patient, from the commencement, ought to lie well covered with blankets, in a warm apartment, to which the external air is freely admitted. The complaint is sometimes followed by a watery looseness, which, left to itself, will generally rid the bowels of all offensive matter. I consider purgatives dangerous in any of the stages, and likely to aggravate the disease, or to cause a relapse. The warm bath also is objectionable, on account of the weakness which it is calculated to produce.

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* *Vide* Van Sweiten in Boerhaav. Diarrhœa Febril.

Bleeding is likewise recommended by some whose opinions are entitled to much respect; yet neither principle nor experience has convinced me, that the practice is beneficial or even safe. The veins, however, having shrunk and become almost empty, the operation in most dangerous cases will be found impracticable. Calomel, like other mercurials, though it be, in the words of Cullen, a powerful and diffusible stimulus to every living fibre, proves too tardy and inconsiderable in its effects on the blood-vessels, to deserve confidence here. The slow but prolonged excitement of this remedy would suggest it as a corrective of the debilitating consequences of opium; and these qualities may account for the success ascribed to it by Mr Johnson, and his imitators in this country. Wine and spirits, which I have mentioned as the best adjuvants to the laudanum, are the only remedies to which we can resort in those cases where the vomiting has ceased spontaneously, and left the sufferer in a state of collapse. My opinion respecting the *modus operandi* of opium, must be anticipated by this time. Brought nearly in contact with the nerves of the stomach, and entering the circulation, it seems to act by exciting the sanguiferous vessels to unload the great cavities of the accumulated blood, which the extending operation of the medicine enables them to propel gradually to the surface and extremities. The return of warmth and circulation to these parts, which always accompany a remission of the symptoms, is thus readily explained. The prophylactic treatment will appear simple, if my opinion respecting the remote causes be admitted. These are to be avoided or resisted.

We are enabled, in some measure, to follow the latter indication, by recollecting what classes of people were most affected. The poor suffered much, the rich little, and natives far more than Europeans. Generous diet, comprising animal food and wine, is accordingly advisable. Clothing, strictly adapted to the season; flannel worn next the skin; and moderate exercise to keep the body in vigour, are obvious precautions, which those unavoidably exposed to noxious exhalations and irregular transitions of weather, ought never to neglect. It is also an excellent general rule for the preservation of health, particularly during the prevalence of any disease, to assist the stomach and bowels immediately, whenever their functions are found to be impeded or disturbed.

## MISCELLANEOUS REMARKS.

Having noticed the affinity of Cholera Morbus to other affections of the general system, whose symptoms consist in depression of the vital powers, I shall now bring the subject more particularly under review, by quoting some passages from different authors.

The quotations in Latin are from the well known work of Morgagni *de Sedibus et Causis Morborum.* Those in French are taken from a volume highly esteemed in France, entitled, "*Secours à Donner aux Personnes empoisonnées,* par M. P. Orfila."

The other extracts relative to poison, are copied from the Edinburgh Dispensatory, published by Professor Duncan, junior. The Comparative Extracts on Cholera, are taken from the "Report" published by order of the local Government, which the Medical Board of Bengal had delegated their Secretary, Mr James Jameson, to compile from the communications of subordinate medical officers. *

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* Considering the liberal and enlightened efforts of the late Governor-General to promote the cultivation of medical science in India, with an offer to print Essays at the expense of Government, it is remarkable, that some, of one hundred communications which the Medical Board received relative to Cholera Morbus, were not given to the world. Those of the Superintending Surgeons, for instance, might be very valuable to the public; and it is known that Messrs Gibb and Reddie, who had the most extensive fields of observation, are particularly well qualified to instruct others with the result of their experience.

| POISONS. | EPIDEMIC CHOLERA. |
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| " *Effets des poisons irritans vegetaux.*" (Aconite Hellebore Elaterium, &c.)<br>" Saveur âcre, piquante, plus ou moins amère; chaleur brûlante, grande secheresse dans la langue et dans les autres parties de la bouche, resserrement douloureux de la gorge, envis de vomir, evacuations par haut ou par bas, efforts pour vomir, lors même que l'estomac est deja vide; douleurs plus ou moins vives dans l'estomac et dans les entrailles. Quelques uns de ces poisons determinent des convulsions plus ou moins violentes, la roideur des membres, et des douleurs aigues qui font pousser les cris les plus plaintifs."—*Orfila*, pp. 73, 74. | The attack was generally ushered in by a feeling of fulness and pain in the stomach, and swelling of the abdomen, with sickness and a desire to go to stool. Then came almost immediately, vomiting and purging, of a pale thin fluid, without taste or smell; great anxiety, oppression, and sense of constriction about the heart and præcordia. Together with these signs of general depression, the action of the heart and arteries was uniformly diminished. |
| "*Effets des Champignons veneneux.*" — " tranchées, envies de vomir, evacuations par haut et par bas, chaleur d'entrailles, langueurs, douleurs vives, presque continues, crampes, mouvemens convulsifs de telle ou de telle autre partie du corps, soif devorante."—*Orfila*, pp. 88, 89. | " There was great and sudden prostration of strength. The hands trembled, and the action of the voluntary muscles was uncertain and unsteady." *Report*, pp. 38, 39.<br>— " spasms and reaction were more remarkable among Europeans; immediate collapse and prostration of strength among the natives."—*Report*, p. 57. |
| *Arsenic.*<br>" The only symptoms which characterise this poison, are extreme pains in the stomach and bowels, vomiting of glairy and bloody matter, purging, with cold | |

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None will doubt that the Board acted judiciously in imposing the responsibilty of forming a " Digest," on one individual, instead of a collective body. But with extreme delicacy towards others, and modesty in himself, Mr Jameson appears to have taken samples indiscriminately from all his contributors; and after blending them together, he has withheld the light of his own judgment from the heterogeneous mass. His concluding summary is scarcely an exception. He will excuse me for thinking that one, officiating as both judge and jury, who produces a volume of garbled evidence, without returning his verdict or passing sentence, must not expect to satisfy the parties concerned, whether " Physicians or Fools." Και ἰατρὸς καὶ ἰδιώτος. See Mr J.'s motto.

POISONS.

sweats and trembling. Sometimes there is no pain, only debility and fainting, with vomiting and purging."

### *Digitalis.*

Produces "vomiting—purging—convulsions—collapse."—*Duncan.*

### *Inanition.*

A young whelp which was starving to death, "tertio inediæ die convulsivis motibus toto corpore tentari cœpit, modo vehementioribus, modo remissioribus. Die quarto interiit."—*Morgagni, Epist.* 28–5. *et passim.—See also Shaw's Manual*, p. 43, note.

EPIDEMIC CHOLERA.

## APPEARANCES ON DISSECTION.

### *Arsenic.*

"On dissection, the stomach and bowels are sometimes found to be inflamed, corrugated, or gangrenous; rarely corroded. The lungs are frequently marked with livid spots."—*Duncan*, p. 56.

### *Inanition.*

Of the whelp already mentioned, "Ventre aperto, vesicula fellis inventa est bile abundans."—"Pulmones in latere dextro nigerrima oblonga macula tincti. Cordis auriculæ multum dilatatæ a concreto sanguine: quo et ventriculi erant pleni."—*Morgagni, ut supra.*

### *Cholera.*

"On opening the abdomen, the inner surface of the stomach, from the cardia to the pylorus, was found inflamed, red, covered with slimy, bloody, greenish matter; in some parts slightly abraded."—*Report*, p. 258.

"The gall bladder was generally full of dark green or black bile."—*Report*, p. 70.

"The heart and great blood-vessels were stuffed with clotted blood; and the lungs were black, collapsed, and preternaturally heavy."—*Report*, p. 71.

The coexistence and intimate connexion, if not the identity, of the causes of epidemic cholera, and of intermittent fever, have been already remarked. Whilst both of them raged, I believe that the latter destroyed more Europeans than the former. The two diseases would appear to have been conjoined in some parts of India, where, it is reported, the epidemic exhibited a hot and a cold stage. I describe what I saw; and in no case did I perceive any morbid reaction, nor a greater degree of warmth than stimulating medicines might occasion.

In Shaw's Manual of Anatomy, it is appositely observed, "In the greater part of those who die of fever, the intestines appear gorged with blood—not inflamed." The prelude of "natural death" is commonly congestion in the large cavities. Yet this accumulation arises not from inaction of the internal vessels; for the inordinate evolution of heat, frequently the last complaint of a dying patient, denotes activity in the arteries. The inward heat in cholera, and in the last stages of debility, however produced, seems to result from the loss of equilibrium in the circulating mass which then preponderates within. The same cause operates when, on the great artery of a limb being taken up for aneurism, the unwonted volume of blood distends, and excites the smaller branches to excessive action. The existence of some analogous condition of the abdominal viscera in cholera, is rendered more probable by the extraordinary quantity of secreted fluid which is discharged from the alimentary canal. The functions of the kidneys are, at the same time, nearly dormant, owing perhaps to the structure of their minute capillaries, and to a different distribution of nervous influence.

It is now generally, though it would appear not universally known, that poisons destroy life through the medium of the constitution, and not by directly injuring the digestive organs. Cholera has been considered a local affection proceeding from a "lesion" of the stomach and small guts, because it resembles the "train of symptoms induced by the introduction into the stomach of arsenic, (corrosive) "sublimate," and nitric acid, or of large potations of bad spirituous liquors." But when injected into the veins, they act precisely as they do when swallowed; consequently, the subsequent derangement of particular parts results from a general disorder of the system.

Poisons of all kinds must enter the body by absorption. Accordingly, it matters little whether that take place from the skin, the lungs, or the intestinal tube, by red vessels or lymphatics. Nor do the *media*, by which they are communicated, affect their deleterious qualities: Food, air, water, are mere vehicles that do not change the nature of what they convey. The *seminium morbi*, contagion, infection, with all the exhalations of decaying matter, however different in virulence, are in reality poisons, as well as those substances more palpable to the senses, to which the term is appropriated. The effects of all of them concur in that depression of the vital powers, of which the consequences, as we have seen, are almost uniform.

There are many causes of epidemics depending on atmospherical variations which pass unnoticed, because, though every person will admit them, no one can define their character, or the limits of their influence. Meteorology may hereafter acquaint us with the nature of the weather, which, in some seasons, occasions the growth of poisonous fungi in vegetables, and that renders grain, in particular, injurious to animal life. On this subject, Dr Tytler of the Bengal Establishment might have done essential service to society, by temperate and philosophical investigation. But, with capacity and intelligence calculated to extend the boundaries of science, he has ingrafted so many fanciful doctrines on one important fact, that his theory has long been regarded as chimerical in India. He calls the epidemic "Morbus Oryzeus;" maintaining, without toleration of dissenters, that a crop of bad rice in 1817 was, and is, the sole cause of cholera throughout the world. *

Those myriads of ephemeral insects and animalcules, engendered by moist weather in hot climates, must, to a certain degree, deteriorate both air and water, while living, and add to the putrid exhalations when dead. Woods and rivers, not to mention stagnant pools, are the fertile sources of disease in our Oriental settlements; those stations being most healthy, where the least vegetation, and no water, are perceptible on the surface of the ground. Calcutta, where this malady has proved most deadly, is a focus of pestilential matter, which has seldom had an equal. Overpeopled, unventilated, filthy, its atmosphere polluted by the living and the dead, surrounded with jungles, marshes, and the muddy bed of the Hoogly, the native portion of the town might be called the city of Nemesis, with as much

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* Since I submitted the foregoing to the Editor, he has had the politeness to show me several works from India on the Epidemic Cholerà, besides Mr Jameson's Report.

Of Mr Orton's Essay, abounding in acute observation, original views, and philosophical reasoning, I am ashamed to acknowledge my previous ignorance. After reading that gentleman's first volume, in which most of what I reckoned worthy of attention in my remarks has been anticipated and more ably unfolded, I would have entirely suppressed this paper. It is believed, however, that my conclusions, drawn from different facts, may prove confirmatory of Mr Orton's. On some points of doctrine, we will be found to differ considerably.

I have also perused, for the first time, two volumes and "A New Nosologica' System," by Dr Tytler, with whom I am happy to concur in many particulars. Judging of his opinions only by the epistles bearing his name, which appeared in the Calcutta prints before 1820, I understood him to consider rice as the universal destroyer. He now states, however, that the "farinaceous grains, particularly wheat and rye," are often vitiated by excessive rain; and to the use of these as food, he imputes a variety of febrile diseases, as well as cholera. The terms Morbus Oryzeus, and Cholera Oryzea, are certainly calculated to mislead on this head, though rice is still maintained to be a principal cause of the epidemic. Aware that every dwarf cannot follow with equal steps an eccentric man of talent in his gigantic strides, I speak with diffidence of Dr Tytler's labours. His facts appear sometimes ill supported, and his induction is often careless; yet enough remains to claim the serious attention of the medical profession to his works.

propriety as Chouringi, the residence of wealthy Europeans, is styled the "City of Palaces." In a note to his work, Mr Jameson has ably and perspicuously pointed out the causes of the insalubrity of this important place, and has suggested the means of removing them. A million of inhabitants owe him their gratitude for that exposition. Were this gentleman's advice duly appreciated by Government, and the measures which he recommends adopted throughout the province, we might hope for the permanent restoration of that *elasticity* to the air of Bengal, which, as we learn from the Report, has sometimes been lost of late years.

The practice of bleeding seems to increase. Fashions in physic change as they do at Court: and since the same kind of dress must decorate all forms, the same remedy is made to cure all diseases. At present, a wise physician is bound to denounce theory, and call for facts. A great man of the Old School, believed the profession, in his time, to abound more in false facts, than in false theories. The former still retain their preponderance; and the reason seems obvious. A new "fact" is simply an assertion, which any man can make, leaving the proof of it to others. While a theory is a process of reasoning open to all, on which every one interested sits in judgment. Without inferring probable causes from known effects, and *vice versa*, we must proceed blindfold to make the required discoveries. It is in this manner that some writers arrive at the most startling conclusions, without telling how, or showing us the way. When the practitioner, for example, is called to a patient having the *facies hippocratica*, cold and shrunken limbs, and no pulse at the wrist; what are the facts which induce him to draw blood from this man's veins? We are told, "From its being observed that the blood always withdrew from the extreme vessels, and gorged the great trunks, it was naturally concluded that the cure would lie in restoring the balance of the circulation. Hence, venesection was resorted to," &c. Now, writing in earnest, and too serious to affect derision, I take this hypothesis to be founded on the hydraulic principle, according to which we "restore the balance" between two vessels containing unequal quantities of liquor, by means of a syphon. But as the operation may not succeed in a full cask, without piercing it in the upper end to admit air, I should feel no surprise, if the fact were found applicable to the treatment of cholera morbus.

It would appear that neither phlebotomy, nor the occasional consequences of it, are entirely new in this disease. Morgagni describes the case of a medical student, who, having evidently the symptoms of cholera, was bled contrary to the advice of his own physician, by order of two seniors, who decided that the patient was in convulsions. "Bis vena pertunditur: primo ex vulnere nihil exit; ex secundo sanguis quidem prosilit. Sed continuo impetum amittit languideque adeo exit, ut tametsi vena mox clausa sit, pulsus amplius percipi non potuerit, &c. "Mors"—ingruit secundum Valsalvæ (medici) predictionem." *Epist.* 30–2.

I shall now conclude with a brief summary of my opinions relative to this disease.

The Indian epidemic is the cholera morbus of authors in a violent form. The remote, in which I include predisposing and exciting causes, are deviations of the seasons from their ordinary course, and abnormous vicissitudes of weather; dense population; defective and noxious food; and generally, (a concentrated state perhaps of) whatever is calculated to produce intermittent fever.

The phenomena and consequences of the disorder resemble the effect of poisons. Depression and atony of the general system permitting the circulating mass to accumulate within the central trunks, the consequent irritability, secretion, and action of the alimentary canal, constitute the proximate cause.

The grand indication of cure is to restore the equilibrium of the circulation, by renovating the vital powers. Diffusible stimulants, chiefly tincture of opium, in large doses, with the application of external warmth to the surface and extremities, are the most successful remedies.

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## II.

## *Report of Cases treated at the Ophthalmic Hospital, Chatham.* By ANDREW SMITH, M.D. *Communicated to Professor Thomson.*

(Continued from Vol. xviii. p. 519.)

*CATARACT.*—Ten soldiers, with blindness in one or both eyes, from opacity of the crystalline lens, or its capsule, were received into Hospital. Eight of them were of one eye, and the remaining two of both. The operation for the cure of the disease was performed on four; and in the other six no treatment was adopted, in consequence of the senior medical officer agreeing with the general opinion, that when one eye was sound, the other ought never to be meddled with. Such a rule of practice cannot, I think, be too soon abolished; and therefore I avail myself of the opportunity which offers itself, of examining into the validity of some of the arguments by which it has been supported. I shall then consider the advantages which result from operating upon one eye, when the other is sound.

The advocates for delaying the operation assert, *in the first place*, that, from the sympathy which exists between the two eyes, the sound one is apt to suffer from the violence done to the other; *secondly*, that in consequence of the lens being lost, the rays of light will not be concentrated and impinged on the same part of the retina as in the other eye; and that indistinct or double vision will be the result. With respect to the *first* of those objections, I have to observe, that no such occurrence has ever come within my observation. In two cases operated on by Staff-surgeon Murray, no inconvenience was felt in the sound eye; and in the case in which I broke up the lens, in the Depôt Hospital at Edinburgh, as you no doubt will remember, nothing but the most perfect success followed. Since that time, I have performed extraction thrice, and breaking up twice, without the least detriment to the unaffected eye; which results, in addition to what are to be met with in the works of Wenzel, Scarpa, Travers, &c., leave no doubt on my mind but that the dangers are supposed only, and not real. As to the *second* cause of delay, I have to remark, that it appears to me as frivolous, and nearly as groundless, as the one just examined. That a slight degree of double vision does occur for a short time after the lens has been extracted, I must admit; but it is so trifling, and of so short duration, as often scarcely to be observed by the patients, unless inquiries be made at him directly to the point. In the cases, again, where the lens was broke up, this casual imperfection did not occur, as the eye became accustomed, before the lens was absorbed, to its privation. The following were the remarks I made on the cases in which extraction was performed. Three saw objects double when the bandage was first removed, and for nearly twenty-four hours afterwards; then singly. Two saw double for about three hours; and one of them, two days after, upon being surprised, and opening his eyelids suddenly, experienced, for a few seconds, the same imperfection. A sixth saw constantly double for four days, and, after that, as distinctly as ever he did; and the other three cases, as above remarked, always single.

With respect to the arguments which have been urged in favour of the operation—*first*, by waiting till the other eye becomes affected, the retina of the diseased one, from long want of its natural stimulus, is apt to become amaurotic; *secondly*, inflammation is more easily excited in an eye affected with cataract, than where the disease does not exist; *thirdly*, the field of vision is much more considerable with both eyes than with one; and, *lastly*, by operating early on one eye, the other has been known, when affected with incipient cataract, to undergo a spontaneous cure; but should this not take place, it will prevent the blindness, which is the inevitable consequence of a cataract on both. That the eye may become amaurotic, from being long deprived of the stimulus of light, I can readily conceive; and I know two instances in which the retina became insensible during the existence of a cataract, without the slightest appearance of any external inflammation. Mr Travers and others have also seen the same thing occur. That inflammation is more readily excited in an eye affected with cataract, than in a healthy one, is a certain fact; and that the inflammation, if deep-seated or of long continuance, will induce disease of the retina, every one must know who has attended to the diseases of the eye. A variety of a lippitudinous affection also very often coexists with cataract, and is only to be got rid of by a removal of the opacity; which fact, though rather singular, and not easily accounted for, I have observed in more than one instance. That the field of vision is much more limited with one eye than with both, every one can convince himself, by simply covering one, and observing surrounding objects with the other, and then immediately making the same inspection with both. Lest, however, it might be said that the field of vision, though enlarged, would not be distinct, with both, I invariably put the question to *every* man who came in my way, where the lens had been absorbed or extracted from one eye, and they always answered, that their vision was neither by any means so good nor so extended, when they looked with the sound eye, as when they employed both. That incipient cataract in one eye sometimes disappears, after the operation has been performed, for a complete one in the other, I am not warranted from my own observation to assert; but proofs to that effect are to be found in an excellent paper, by Mr Carmichael, published in the nineteenth volume of the London Medical and Physical Journal, which sets the matter beyond a doubt; and, along with the other reasons, throws the balance, in my opinion, much in favour of an early operation. Independent of those reasons, another of very great weight might be urged, if necessary, viz. the great chance there is, by pursuing such a plan, that complete blindness will be prevented; a circumstance so desirable to every one, but more particularly to those of the lower class of society, who, by their manual labour, have not only to gain a livelihood for themselves, but often for large families.

Let us now return to the detailed account, by stating, that extraction was the operation performed in the four patients treated. As the disease in two of them existed in both eyes, one of each was first treated; and as soon as they had perfectly recovered, the others were subjected to the same operation. In both of those, and in one of the others, the section of the cornea was made in the usual place; but, in the fourth case, it was formed in the outer part, the more completely to guard against any protrusion of the iris, which occasionally takes place after the first method. In consequence, however, of the patient thus operated on having been very unsteady, the whole of the lens could not be got out; but what remained was suffering absorption rapidly at the time I was ordered away to the *Isle of Wight*, and his vision was daily, nay, I may say, hourly improving. The treatment, after the operation, was very simple, and consisted in keeping both eyes covered for three days, or longer, with wet cloths and a bandage, whilst the patient was confined in a room either entirely dark, or only with a dull light, and his bowels kept moderately open. The diet, for the first ten days, was very low; and great attention was paid to prevent the eyes being exposed to a strong glare of light, which was found to occasion an aching sensation in the eyeballs, and a temporary indistinctness of vision. One of the patients, who had the lens extracted from both eyes, and one of them who had it only removed from one, were able, fourteen days after the operation, to find their way about with ease, to distinguish a man from a woman at fifty yards distance, or read large print without glasses; and the other two, though much benefited, were still, at the time I left Chatham Hospital, under treatment. I may remark here, that, in ascertaining the degree of vision possessed by the patient after the operation, who had one eye only affected, the sound one was previously covered by a bandage and compress.

*Amaurosis.*—Three of the patients admitted, laboured under this disease in its advanced stages; and the fourth had it only in an incipient form. In all of them it commenced while serving in warm climates; and in three, attacked both eyes at the same time; but in the fourth, the disease began in the form of hemeralopia in one eye; and in the course of a year after, the other was seized with dimness of vision, which went on increasing to complete blindness. The disease, in one of the patients, commenced during his convalescence from ague; in a second, it remained after a severe attack of purulent ophthalmia; and in the other two it came on gradually, while doing the usual duties of soldiers.

The symptoms, on admission, in the confirmed cases, were, great dilatation of the pupils, which, in one of them, were not at all affected by a bright light, and in a very slight degree only in the other two. The eyeballs had an unusual bluish tinge, felt soft, and yielded considerably to pressure. *Two* of them were able to observe some change, when brought from a dark room into a bright light; but, to the third, no such alteration was perceptible. The countenance, in all, had a dull vacant stare, and the eyeballs appeared as if nearly fixed in their sockets; at least their motions were much less rapid and extensive than is usually observed in healthy eyes. In the incipient case, there was considerable dimness and imperfection of vision, great intolerance of light, and slight lachrymation, without the least signs of external inflammation. The pupils were rather more than naturally contracted, and the patient felt, as he expressed it, " a throbbing and fulness in his head." Appearances like flies, or balls of fire, were also frequently observed by him, as if issuing out of, or floating before, his eyes; and his bowels were generally confined.

The attack of the disease in the patient who was seized during his convalescence from ague, was marked, he stated, by " weak sight, a ringing noise in his head, and occasional pains in the ears." In the other two, no other symptom but impaired vision was ever experienced; and that, though very slight at first, soon went on to perfect blindness.

Three of them attributed their complaints to the strong glare of the sun, to which they had been much exposed; one while serving in Gibraltar, another in St Helena, and the third in the East Indies. The fourth thought it was the consequence of a severe attack of inflammation of both eyes, accompanied with purulent discharge, which he had a short time before in Malta.

*Treatment.*—The patients affected with amaurosis in its confirmed form, had their bowels at first well evacuated by a dose of calomel and jalap; after which, they were kept for some time on an alterative course of mercury, with an occasional purgative. But as no benefit, after a considerable time, appeared likely to result, those remedies were changed for electricity, moxa, &c. The former of these was used, in the form of sparks to the outer side of the upper eyelids and brow, at first every other morning, but, after some time, every morning; and the latter was applied to the temples, so strongly as to destroy the vitality of a portion of the integuments, and thereby afford an opportunity of establishing issues, which, in all, were kept discharging for some time, without effecting the slightest change in the diseases. The bowels, during this stage of the treatment, were kept regular, by the constant employment of mild purgatives when required. Both the above plans having failed, a course of tonic medicines was tried, composed of bark, carbonate of iron, and rhubarb, but with equally bad success; which circumstances, together with the knowledge of the assigned causes, and which, I think, there is no reason to doubt were the real ones, led to their dismissal from Hospital, in compliance with their own requests. In thefourth case, orthat where the disease was only in its early stage, a cure was readily effected by the plan of treatment recommended by Stevenson, in his work on "Weakness of Sight." On admission, a strong drastic purge was exhibited, so as freely to evacuate the bowels; and afterwards, half an ounce of sulphate of magnesia was given three times a week. Six leeches were applied to each temple every morning, and the bleeding encouraged by warm fomentations; the feet were bathed at night, and a scruple of Dover's powder given at bedtime. By a continuance of this treatment, the intolerance of light gradually abated, and the vision became more and more distinct, till at last he was discharged, about the fourteenth day from admission, quite cured.

The cases just detailed, together with many others which have come under my observation, have perfectly convinced me, that that form of amaurosis which comes on gradually in warm climates, from much exposure to the glare of the sun, is to be cured only in the early stages; and that, when it has existed for some time, and is marked by much dilatation of the pupil, and insensibility to light, it is rarely if ever curable; indeed I may go so far as to say, not to be benefited by any treatment. Such an inference, I assure you, has not been drawn in a moment, but is the result of observation and reflection on different cases which I have seen treated, both by the first army surgeons, and by those in civil life, who have devoted much of their attention to diseases of the eyes. Topical blood-letting, and the other means employed in the case already alluded to, would, I am satisfied, put a stop to many cases of incipient amaurosis, which, by being either let alone, or treated in some other way, would terminate in a complete and incurable blindness.

*Entropion.*—Of the six patients treated for this disease, one had it in the right upper lid, one in the left lower lid, one in the right lower lid, one in the upper lid of both eyes, one in the lower lid of both eyes, and one in both lids of each eye. In two, the inversion was only partial; but in the other four, the whole extent of the tarsus was inclined inwards, and consequently required a more severe operation for their cure. All of them had been, for a long time previous, much subject to ophthalmia, particularly that form of it complicated with a granulated state of the lining of the lids. The tarsus, or tarsi, in all of them, were more or less completely hid, in consequence of being inclined inwards and upwards under the palpebræ, the cilia were distorted, and assumed various directions;—which states kept up a constant increased vascularity of the eyeball, intolerance of light, lachrymation, pain, itching, and a sensation of weight and restraint on moving the lids; and, eventually, were attended with specks of the cornea, impaired vision, &c. In the two cases in which the disease was only partial, the inflammation, and other symptoms, were neither so violent nor so general as in those in which it was complete. When the palpebræ were everted, which could only be done after considerable exertion, their inner surfaces were found more or less irregular and contracted, or bound down by small membranous bands, which diminished not only their length and breadth, but also impeded their motions, and rendered them much more limited.

Four out of the six attributed their disease to cutting off the granulations from the inner side of the lids, and the other two could assign no cause for the complaint. Considering the appearances exhibited upon everting the palpebræ affected, and that the inversion occurred soon after cutting instruments had been employed for the purpose above mentioned, it appears probable that the disease was induced by the contractions and irregular cicatrices formed during the healing of more or less extensive wounds of the conjunctival lining, which had been made during the removal of the granular bodies which were dispersed upon its surface. This is not taking things merely for granted; for I have frequently observed such wounds occasioned, and such consequences result, from the mode of treatment just referred to, although not in any of the cases under consideration.

*Treatment.*—In the two patients where the disease only affected part of the tarsus, a vertical incision of the cartilage, of about two and a half or three lines in length, near to the extremity or part affected, was found sufficient to effect a cure. In those, however, in which the inversion was complete, a vertical incision of the same extent was required within a line or two of each extremity, and a longitudinal connecting one along its meibomian edge, which being done, generally relieved the stricture, and allowed the margin of the lid to resume its natural position. Whichever of those operations was adopted, the tarsus was kept well everted for three or four days afterwards by sticking plaster and bandage, whilst the wounds were prevented from healing by the first intention, by the repeated application of lunar caustic. In one of the patients, in whom the disease appeared to depend partly on an unnatural relaxation of the integuments of the lids, the second mode of operating was practised; and, in addition to it, an elliptical portion of the relaxed integuments was raised by a pair of forceps placed longitudinally on the lid by an assistant, and removed by the operator with a pair of curved scissors, which he found most convenient. The edges of the wound thus inflicted were brought together, and retained so by two or three sutures and sticking plaster, whilst the whole eye and lids were covered with a pledget of lint and bandage till the parts had healed, only being now and then removed, in order to cleanse and dress them. Attention was paid, during the cure, to the state of the bowels and diet of the patient; and, in one of the cases, four leeches were applied to the temple, to remove some active inflammation which supervened on the operation.

*Pterygium.*—Four patients affected with membranous pterygium were admitted. In three of them only one eye was affected; but in the fourth, it had attacked both, and occurred, in all, towards the inner canthus. The base, or broadest part of the diseased membrane was situated towards the *valvula semilunaris*; and the apex on the cornea, over which it had extended, in three cases, for more than a line, and, in the fourth, farther than the centre of the pupil. In two of the cases, a probe could be passed completely under the diseased parts, which indicated that they were newly formed, and not thickened conjunctiva; but, in the other two, they adhered firmly to the eyeball. In all, they at first presented a pale membranous appearance, with here and there small red vessels running from the base towards the apex, but they soon became more vascular, and thickened, after the treatment was commenced. On the cornea, the diseased membrane was nearly, if not perfectly white, and had a slight nebulosity all round it, which caused a considerable dimness of vision. In the case in which it had extended for more than half way across the pupil, vision was almost entirely destroyed. All the four individuals had been for a long time previous much subject to inflammation and weakness of the eyes.

*Treatment.*—As no symptoms existed which rendered any preparatory measures necessary, consequently the removal of the diseased body became the first step of the cure; and that was done, in all of them, by excision, with a pair of scissors. The patient was seated as in the operation for cataract, with the surgeon immediately opposite to him, and then an assistant, with the fore or middle finger of the right hand, provided it was the left eye that was to be operated upon, and *vice versa*, gently raised the upper lid, while, with the corresponding ones of the other hand, he depressed the lower, and made such a degree of pressure against the eyeball, as, with the assistance of the patient, rendered it sufficiently steady for the completion of the operation. The surgeon then, with a pair of small forceps, held in the hand most convenient, laid hold of the preternatural membrane about a line behind the cornea, and gently raised it, which, being done with a pair of curved scissors, he commenced cutting close to the edge of that tunic, and extended backwards as far as the origin of the disease, whereby a wound of nearly a triangular form, and of considerable depth, was inflicted. The bleeding was encouraged by warm fomentations; and as soon as it was stopt, the eye was covered, for three or four days, with a pledget of simple dressing, and the patients kept in a darkish room, with their diet and bowels well regulated. The portion of diseased membrane which was not removed from the cornea, was, after a few days, touched with a point of lunar caustic, an operation which was repeated frequently till it was destroyed; but in neither of the two cases in which a cure was effected, did the entire transparency return, although vision suffered little, if at all, from the state that remained. In those in which the operation succeeded, about the third or fourth day the surface of the wound was covered with a thick whitish stratum of lymph, and the edges commencing to cicatrize, this process went on rapidly till the whole had healed. In those, again, where the disease was regenerated, a red soft fungus-looking substance was observed where the lymph ought to have been, and there was a considerable degree of surrounding inflammation and soreness, with slight puriform discharge, and a few minute red vessels, extending towards the diseased part of the cornea. These appearances were soon succeeded by the formation of a similar disease to that just attempted to be destroyed; with this exception only, that it was more of a fleshy than a membranous nature, and had a greater number of vessels ramified throughout its substance.

In the last description of patients, one of whom was the individual with the disease in both eyes, the same operation of excision was repeated, and exactly with similar results, which led to the employment of caustics. Nitrate of silver and nitric acid were the two preferred. The first of these was applied for some time to the whole diseased surface, with evident benefit; but it seemed, by repetition, to lose its charm, and instead of diminishing, appeared actually to increase the disease. It was then laid aside for the acid, which was applied at first a good deal diluted, but latterly nearly in its pure state. It produced, as well as the other, each time, a more or less considerable eschar, which, upon being detached, left the parts very tender for a day or two, and excited a good deal of puriform discharge. As soon, however, as those symptoms had abated, it was applied again; and at the time I left Chatham, the disease which affected one eye of one, and both eyes of the other, was evidently upon the decline. Immediately after either of the above applications was made, the parts were besmeared with almond oil, to protect the sound parts against the effects of those portions which might be carried away by tears, or otherwise detached.

Those cases, however, as well as most others that have come within my observation, strongly point out, I think, the propriety of abstaining from any treatment in this complaint, till either vision is much impaired by it, or else some other very disagreeable symptoms exist, as, in by far the greater number of cases, if a complete cure is not effected, the disease is only aggravated, and that often even under the hands of the most learned and experienced surgeons.

*Hordeolum.*—This being a disease generally of so trifling a nature, will account for only two cases having been treated in Hospital. In both of them it had its site towards the outer extremity of the right upper lid, and was in each accompanied by much swelling and redness of the palpebræ, with a good deal of itching, smarting, and lancinating pain on moving them; which latter, by degrees, was converted into a dull pulsatory kind. The patients were freely purged, and put upon a low diet. A poultice was applied to the tumours, and changed several times a day. As soon as matter had formed, an opening was made with the point of a lancet, and the poultice continued for another day, after which it was changed for a little simple dressing, an application that was continued till the cure was completed, which in both took place in the course of three days from the time the matter was evacuated.

*Hemeralopia.*—Two men were received from warm climates, affected with night-blindness. Both of them were first attacked with sore eyes, during the Egyptian campaign, and had been more or less subject to them ever since. They were both men advanced in years, with broken-down constitutions. One of them was about to be discharged the service for old age, and the other was transferred to a veteran battalion; but as he did not recover his sight completely, I believe he was, soon after joining it, put upon the pension-list. The first of them likewise had, in addition to the blindness, an opacity of about the size of a pin's head, nearly in the centre of the lens of each eye, which, however, did not impair his vision in any perceptible degree. Both of them gave nearly the same history of their disease; with this exception, that, in one of them, it had existed in a greater or less degree for the last six years, and in the other for only two. They stated, that, as the sun went down, their sight became more and more imperfect; that in the course of the evening it left them entirely, and continued so during the night, till sunrise in the morning, when it returned again in the same gradual manner, and continued perfectly good till the same time next evening, when the usual symptoms were again experienced. Upon examining the eyes during the day, the pupils were observed to dilate and contract regularly, according to the quantity of light admitted; but when a similar inspection was made after sunset, the effects just described did not appear to result from the same degree of stimulus. They seemed then a little more dilated than natural, and contracted but sluggishly upon exposure to light, whilst the eyes themselves looked devoid of their usual energy and vivacity. Their eyeballs were firm, and did not yield to pressure; their bowels were regular, and appetite good.

They assigned, as the cause of their disease, the strong glare of light to which they were exposed, when on sentry and at drills, during the time they were quartered at Gibraltar and the Cape of Good Hope. That such a strong light is reflected from the rocky and sandy surfaces of both those places, I can vouch from experience; and am inclined to refer the origin of the disease to the same cause as they have done, because I have observed my own sight, after being out in the sun for some time, very much diminished, upon coming into a dull, or even a well lighted room, and sometimes continuing so for a very considerable time. Thus, I have no doubt, had I continued to expose myself in the same way, I should soon have been unable to distinguish objects in the dusk of the evening, or during candle-light. In consequence of the retina having been for some time acted upon by so strong a light, its sensibility would have been so far diminished, as not to have been affected by one so much weaker. The same consequences I have observed amongst tradesmen, who have been in the habit of working at bright shining objects during the day; for some of them at night have been unable to read or discover small objects, particularly when of a dark colour, and this defect of vision would no doubt have terminated, had they persevered in their usual occupations, in confirmed hemeralopia.

The treatment pursued was very simple, and quite alike in both patients. It proved perfectly successful in one of them; but in the other, perfect vision was not restored; a circumstance which I am inclined to attribute more to age, and a general decay of the constitution, than to a local cause, more particularly as his sight was not good even during the day. On admission, they were put into a ward moderately lighted, and their bowels evacuated by some gentle cathartic. A blister was then applied to each temple, and kept discharging by savine cerate; while some solution of muriate of mercury, in the proportion of two grains of the salt to an ounce of water, was dropt into the eyes twice a day. The purgative medicines were repeated again on the third day; and on the fifth, fresh blisters were applied to one of the patients, as the old ones were healing up before the disease had given way. The quantity of light admitted into the ward was also at the same time increased; and in five days more, viz. on the tenth from admission, one was quite well, and the other was able to see a little at night. The first was now allowed to walk about, and enjoy all the advantages of the open air, without restraint; whilst the other was only in a limited degree, for a few days more, till his vision became a little better. He was then, after continuing some time in the same state, in spite of a continuance of the treatment, discharged from Hospital to join his regiment, then quartered at Canterbury.

During the whole time which those patients were under treatment, the strictest watch was kept over them, in order to ascertain if they were not feigning their complaints, (the diseased appearances being so obscure and trifling);—a trick frequently attempted by soldiers, for different purposes, and sometimes done with so much appearance of reality, as even to deceive for a little the strictest inquirer. The simplicity of the treatment, the complete cure of one, and the great amendment of the other, which followed it, together with their having frequently, when alone, run against fixed objects, so as to hurt themselves considerably,—all tended to remove any doubts as to the reality of the disease.

*Tumor Fungosus Bulbo Oculi exoriens.*—The individual who was the subject of this disease, had had a small tumour twice, successively, in the same situation, many years ago, while serving in India, both of which were removed before they had attained the size of small peas, by the knife; a mode of treatment which, for the time, proved quite effectual. The present morbid growth commenced about eighteen months ago, in the same situation, and after the same manner as those just alluded to, viz. in the form of a small red pimple, but increased much more rapidly than either of them did, and was only not removed in the early stages, *as he states*, from an idea that it would be soon reproduced. On admission into Hospital, it measured about an inch and a quarter from the margin of the upper lid, which lay immediately over its origin, to its most depending point; and its greatest breadth, which was just under where it protruded from between the tarsi, was fully an inch;—thereby filling up the whole palpebral opening, and concealing in a great measure the eyeball. Its thickness, which was nearly alike throughout, was about half an inch; and its general colour was a livid blue, streaked with red, more particularly towards its origin, where it was smaller than at any other point. Upon raising it with the fingers, and at the same time elevating the upper lid, the lower part of the eyeball was alike exposed, and the tumour was found to arise partly from the upper and outer part of the cornea, but principally from the conjunctiva immediately connected with it. It was very tender to the touch, bled easily, and felt very painful in cold weather. The vision of the eye, of course, was quite gone, and its motions, as well as those of the lids, almost entirely prevented. He could assign no real or supposed cause for the complaint.

As soon as the connexions and apparent extent of the diseased parts were ascertained, its removal was immediately decided on; and this was done by ligature, instead of the knife as hitherto. The thread employed for that purpose was of considerable strength, and was carried quite down to the commencement of the tumour before it was tightened. Severe pain in the diseased parts, as well as in the head and eye, was the immediate consequence of this operation, which, in a few hours, became so severe as to threaten phrenitis, and require venesection to be performed, which soon relieved the violence of the symptoms. The tumour by this time had acquired a dirty black appearance, and was quite insensible when touched, only giving him pain when moved up and down towards the part surrounded by the ligature. The headach and pain in the eye gradually subsided; and the fungus came away along with the thread, on the fourth day from the application of the latter, leaving a raw surface, of nearly the size of a sixpence, in the site already described, which soon healed by the use of a weak solution of nitrate of silver, dropt on it night and morning. The portion of the cornea to which it was attached, remained slightly opaque; but, as it did not extend near so far as the pupil, vision suffered but little; indeed, it may be said that the patient was discharged from Hospital perfectly cured. His diet during the time he was under treatment was properly regulated, and his bowels were kept moderately loose, at least one or two stools were ensured daily, and he was confined in a great measure to his room.

Having now made the proposed remarks on the different diseases as they stand in the general return, and detailed the modes of cure which were adopted in each, I have to express my regret at not being able to give you any account of the operations for artificial pupil, as my notes relative to that subject have accidentally been lost. I regret this the more, as the number was so considerable, and the general success so highly creditable to the dexterity and talent of the operator, Staff-surgeon Murray, with whose professional character, however, you are already, to my knowledge, well acquainted. As soon as an opportunity shall occur of consulting the registers in which the different cases were inserted, I shall lose no time in giving you a full detail of the whole. And now, for the present, allow me to subscribe myself,

Your's, very sincerely,

ANDREW SMITH, M. D.
Army Medical Staff.

*Cape of Good Hope*, 1st *November*, 1821.

## III.

## *Case of Osseous Disorganization of the Mitral Valve, accompanied with Inflammation of the Pericardium and enlarged Liver.*

By JAMES ADAM, M. D.

J. WILSON, ætat. 21, Bengal Pilot service, stout made, rather muscular, admitted 5th January 1821.

5th.—Evening, 5 o'clock.—Is in a state of great apparent distress, breathing laboriously, with an anxious slightly tumid countenance, and a hue on the cheek approaching to livid, but not strongly marked. Complains of severe pain in the epigastric and right hypochondriac regions, which are visibly swelled, and projecting from the general level of the abdomen. The swelling is divided into two; and, by his own account, there were originally two distinct tumours in that situation. The whole belly is in some degree swelled. Was first taken ill about 9 or 10 days ago; and on the 30th ultimo, the pain was much increased.

On the day following, he was attacked with shivering, and has continued ever since in the same condition as now. Tongue much furred—the papillæ particularly. Pulse exceedingly irregular, intermitting sometimes after a full beat with a succession of 4 or more rapid pulsations, and at other times *cross heavings* of the vessel, which it is impossible almost to describe in words; great thirst, and total absence of sleep, by his own account, for four or five days. The action of the heart corresponds to the beat of the artery at the wrist, and can be distinctly felt at the epigastrium. He states that his health has been bad for many months, and even years; and dates the commencement of his disease from an accident (a fall or blow) which occurred to him about eight years ago; since that time, has always been liable to complaints of the chest. Has now slight dry cough, but no expectoration; bowels regular; has been vomiting very often; appetite for food entirely gone.

> Q. P. fiat venesectio et adhibeatur enema domesticum. Pro potu habeat potum acid. vegetabil. et capiat extracti daturæ stramonii grani tertiam partem, repetend. post horam, nisi doloris levamen fuerit.

9 o'clock, *p. m.*—About six or eight ounces of blood were drawn from the arm, of a black colour, and disposed rapidly to thicken, but not coagulated, and without the separation into serum and crassamentum. The breathing and distress in general were rather aggravated by this, at least there was no marked amelioration; and the irregularity of the pulse increased. Has taken two doses of the stramonium, the first of which was rejected by vomiting; and he has not obtained any relief from it. One stool followed the glyster.

> Capt. q. p. haust. cum tinct. opii gtt. L. etheris nitrosi ʒi. in aqua q. s.

6th.—Slept a little in the night, but not soundly; complains much of thirst; and the pain continues as before; tongue much furred; pulse not altered, except in being more feeble; the general abdominal swelling as yesterday; no stool in the night; has been often vomiting.

> Capiat q. p. calomelanos grana x. jalapæ grana vi. M. Repetend. post horas duas; et si vomitus adsit, adde opii gr. ss. Adhibeatur q. p. enema domesticum et admoveantur lateri dextro et epigastrio hirudines x.

Evening has been two or three times at stool; motions of a bilious colour, thin, and rather scanty; the vomiting has repeatedly attacked him, and matter rejected of a watery or mucous consistence; the pulse still equally irregular and feeble; general expression very languid; not apparently so much indicative of oppressed respiration as last night; thirst very great; not the smallest inclination to eat; vomited the first dose of calomel, when another was given him.

> Capiat q. p. Misturæ sennæ ℥iij. Repetend. m. s. ad alvum movendum, sed vomitu instante intermittatur, et ejus vice, capiat calomelanos grana xij.

7th.—Took both the calomel and the mixture, and was repeatedly purged, and also attacked with vomiting; pulse now quite regular, and 86 in number; still complains of the pain in the epigastrium, and had no sleep in the night.

> Repetatur calomelas in dose granorum viij. Extracti daturæ stramonii grani pars tertia post horas duas repetend. et nisi responderit alvus post dosem secundam, capiat ol. ricini ℥i.

Evening.—Had two stools, and did not take the oil; evacuations of a yellow colour, and fluid; pulse again more oppressed and irregular, but not intermitting. The tumour of the hypochondriac and epigastric regions may be felt pretty distinctly, extending from under the false ribs of the right side, downwards to the line of the umbilicus, and across the belly, but higher up to the ribs of the opposite side, apparently from its figure originating in the liver. He complains of pain only at the epigastrium, and there is no enlargement of the region of the spleen; a sort of general swelling or projection of the ribs on the right side may be perceived; but on the most careful examination with the fingers between the separate ribs, not the smallest fluctuation or sense of resistance from confined fluid is observable; has vomited twice; much thirst still present; coughs occasionally; the veins of the neck very turgid, as if from obstructed circulation of the larger vessels within the trunk; the belly more distended generally; passes his urine without difficulty, and in the usual quantity.

> Capiat q. p. calomelanos gr. x. extracti hyoscyami gr. vi. M. Repetend. hora octava sine extracto. Pro potu habeat ad libitum infusum theæ, vel quodvis gratum.

8th.—Did not sleep much in the night; has been vomiting occasionally, and had one or two motions of a very dark colour, and bilious consistence; the swelling and pain as before; pulse tolerably regular but oppressed, about 80.

> Capiat. quaque secunda hora calomelanos gr. v. extracti cathartici gr. x. scammoniæ gr. v. M. et adhibeatur q. p. enema purgans.

*2 p. m.*—Has taken two doses of the calomel and cathartic extract, and had as many stools of the same bilious colour, and thin; now affected with retching and slight hiccup.

Cont. calomelas et extractum catharticum.

Evening.—Has been often at stool since last report, motions of the same appearance; complains of a pain in the right arm, and sense of oppressive weight in it, and ascribes these sensations to the wound made in bleeding; but there is very little redness around the orifice. Pulse 88, full and oppressed, but not strong.

Habeat h. s. extracti daturæ stramonii grani tertiam partem; omittantur medicamenta.

9.—Pulse 100, full and rather strong; had much thirst, which prevented him from sleeping in the night; no pain; the abdominal tumour as before; has been repeatedly at stool, motions of a very dark bilious appearance, but now of greater consistence; complains still of the pain in the right arm, and refers it as before to the incision in the vein.

Admoveantur hirudines xv. regioni epigastrii qua tumet jecur, et brachio dextro cataplasma emolliens. Coffee.

Evening.—Is more anxious in his looks, and oppressed; pulse about 86, surface hot; had three stools, less of a yellow, and more of a darkish hue; no vomiting to day; tongue dry, and much thirst; the leeches drew blood freely.

Capiat misturæ salinæ ℥ss. Vini antimonii gtt. xx. quaque semihora, et hora octava adhibeatur enema purgans.

10th.—About 3 o'clock this morning was suddenly seized with a fit, which, by the attendant's account, appears to have been epileptic; he is now quite insensible; pupils fixed; pulse rather quick and distinct, but feeble; surface pungently hot.

Aspergatur totum corpus aquâ frigidâ.

Died at ¼ past 11 o'clock.

*Appearances of the body on Dissection.*—There was a collection of serous fluid in the abdomen, amounting to 10 or more ounces, as far as could be judged from its appearance on the table and floor. The liver was about one half larger than usual, of a dark colour, and felt uncommonly firm, and almost hard. On cutting into it, a dark-coloured thin blood flowed from the incision in a copious stream, and with which the viscus might be said to be gorged; yet there was not such an alteration of structure as would appear to result from a sudden and inordinate distension of vessels; it resembled more a chronic enlargement, while, on the other hand there was no interstitial deposition or morbid disorganization of parts; the cut surface displayed alternate white and reddish dots of very small size, which seemed to be the cellular membrane, and open mouths of vessels, represented on a large scale from distension. The gall-bladder was distended with thin light green-coloured bile. The spleen was about three times the usual size, and enlarged entirely in the longitudinal direction. In its structure it resembled precisely the liver, being firmer and more resisting than in the healthy state of the organ. The stomach lay in its situation much contracted; and its veins, as well as those of the mesentery in general, were apparently enlarged, and more turgid than usual; but both that viscus and the intestines had otherwise a perfectly healthy appearance. The omentum alone seemed slightly inflamed.

In the thorax, as in the abdomen, there was found a considerable quantity of effused lymph occupying each bag of the pleura, and slightly tinged with blood. The lungs were perfectly sound, and free from adhesions to the ribs or diaphragm. The heart alone presented an appearance of disease. On opening the cavity, and turning up the sternum, it was seen lying in its envelope close upon the diaphragm, which it seemed to press, and weigh down at the epigastrium, extending considerably towards the right side, and so much enlarged in all its dimensions as to have materially impeded the action of the lungs. The lobes of the left side were not at first visible from this cause. The pericardium had adhered externally to the sternum and ribs, and the point of adhesion to the upper surface of the diaphragm was unusually strong. On cutting into the bag, not a vestige of cavity could be perceived; the pericardium embraced the surface of the heart all round, and made one mass with it; the adhesions could be separated by the point of the finger with ease, excepting near the left auricle, where marks of more recent inflammation existed. The heart looked paler than natural, and was, upon the whole, firmer, particularly the left ventricle and auricle. On moving the finger along the surface of both these, a number of hardish tuberculated points could be felt, and occasionally a larger knot and corded mass. The adhesions to the pericardium being destroyed, and the heart removed from its position, it was found enlarged to about one half more than the natural size. The right auricle and ventricle contained a dark-coloured fluid blood, resembling that in the liver. The left auricle was much contracted in size, and nearly obliterated; at least that portion of it to which the name is more properly applied. It was hard and tuberculated, and bound down by strong adhesions to the fleshy walls of the ventricle; its colour a mottled ash or greyish hue, resembling that of the lungs; the left ventricle was exceedingly thick and strong. The mitral valve ossified, and several of the *chordæ tendineæ* proceeding from the edges of the valve. Near the middle of one of the ossified cords, there was a sort of exostosis about the size of a bean, which was slightly attached to the tendon, and, when grasped, gave a sensation as of a number of small stony particles loosely connected by membrane. The valve itself could scarcely be cut through with the scalpel, which grated against the bony spiculæ. The valves of the aorta were firmer than usual, but not ossified like the mitral. All over the surface of the heart there was a number of small hard crystalline-looking tubercles, which appeared to be the cellular membrane undergoing a conversion into cartilage.

On removing the scull-cap, the meningeal vessels were found tinged, and a few ounces of dark-coloured blood lying at the posterior part of the base of the brain on the right side. It appeared to proceed from the rupture of one of the larger veins, near their exit from the cranium; but the examination could not be made with sufficient minuteness to ascertain its source accurately.

*Observations.*—On considering the symptoms of the above case, and comparing them with the *post mortem* appearances presented to us, we cannot help being struck with the remarkable morbid connexion existing between the heart and the viscera of the abdomen. Hence arose our difficulty in the diagnosis. The pain and swelling in the hypochondriac and epigastric regions evidently pointed out disorder of the liver and spleen; and the general tumefaction of the belly, together with the statement which the patient himself delivered of his case, rendered it not improbable that suppuration had taken place in the former organ. Indeed, one medical gentleman of experience, who saw the case, gave this as his decided opinion. But the state of the pulse, with the expression of countenance, the extreme watchfulness, and the circumstance of the previous injury of the chest, led me to view the disease as more immediately connected with the circulation; and I was consequently highly satisfied with the result of the examination after death. I think there can be no doubt that the enlargement of the liver and spleen was chiefly symptomatic, and depended on obstruction to the flow of blood in the heart. It did not appear to proceed from a sudden check and subsequent accumulation in those organs; and it was different, too, from the state of parts seen after fevers, and other diseases peculiar to tropical climates. I have not now by me the books to refer to, but, if I mistake not, a similar enlargement of the liver and spleen is mentioned by medical authors (*Corvisart*, and *Laennec* * in the Analysis in Johnston's "Medico-Chirurgical Review" †), as occurring in diseases of the heart; and a case is related in the 65th Number of this Journal,‡ which, in many respects, bears a striking resemblance to the preceding. In that instance, though the liver and spleen were unusually large, there does not appear to have been any congestion of blood in their vessels, as was observed in Wilson's; and the heart itself was comparatively sound. I am not disposed to consider, with the gentleman who relates the case (Dr Gairdner), the enlargement of the heart as an original formation, but rather believe it to have been produced by the increased resistance to the flow of blood, and the necessity thereby induced of a greater muscular exertion to overcome this, in the same manner as we observe in the bladder, in bad strictures of long standing, where this viscus acquires a muscularity, more resembling the auricles than its proper semimembranous structure. Whether the obstruction in the case by Dr G. existed in the heart itself, or in the vessels proceeding from it being pressed upon by the enlarged liver or spleen, I cannot presume to conjecture; but in my patient there was no room for doubt, as the morbid appearances in the former organ were clearly marked, and sufficient, I should think, to account for all the other phenomena. Excepting the detail contained in the body of the case, I could learn nothing satisfactory respecting the previous habits of my patient. Being a seaman by profession, he may be supposed to have undergone much fatigue occasionally, and to have been exposed to alternations of the weather, particularly the influence of a powerful sun, and frequent drenching in the rain and sea-water, when engaged in his pilot duties at the Sandheads; but, up to the date of the immediate attack which carried him off, he seemed to have enjoyed a tolerable state of health; and his appearance, altogether, was that of a stout muscular young man.

I cannot conclude without joining in the wish of Dr Gairdner, that no observations which tend to elucidate the pathology of the heart may be lost to the profession. I shall feel truly gratified if the humble mite I now offer you can in any way contribute to so important an object.

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* The state of the liver alluded to, is named by Corvisart "bloody distension," "engorgement sanguin," and will be found noticed among that author's corollaries, article vi. § 5. p. 443 of the 2d edition, Paris, 1811. Vide also De l'Auscultation Mediate, &c. par R. T. H. Laennec, 695. vol. ii. p. 251.

† Quarterly Series, January 1820.

‡ Vol. xvi. p. 547.

## IV.

## *Case of common Tubercle of the Liver (Baillie), with enlarged Spleen, and Renal Abscess with Calculi, &c.* By D. R. Robinson, Member of the Royal College of Surgeons, London.

Mr John Morris, aged 66, a man of middle size and strong constitution; never habituated to hard drinking; countenance fallen, with a pale yellow aspect; felt a dull deep-seated pain in his right hypochondriac region for many months; was repeatedly bled for it, which afforded but transitory relief. The blood was invariably cupped, with a thick inflammatory crust on its surface.

Since January 1819, the pain greatly increased. It was a dull, heavy, deep-seated pain, extending from the greatest convexity of the seventh rib for two inches, in a sacral direction; experienced no increase on pressure, but was always aggravated by lying on the left side; complained of a dragging pain, as if the liver was adherent to the right side. By examination, that viscus appeared much enlarged, extended into, and occupied a great part of, the umbilical region. The pain was increased after eating, particularly if the stomach had been overloaded; costiveness also added to the sufferings of the patient, by hardened feces in the transverse arch of the colon pressing upon the concave surface of the liver. Pain made worse by drinking cider, beer, or spirituous liquors, or by over-exertion.

One of the inguinal glands of the groin of the same side became painful, hard, and enlarged; the enlargement had existed for years, but now a little increased. Tongue furred; bowels various; stools natural; skin temperate, except the palms of the hands and soles of the feet, which were of a burning heat; pulse 60 to 80, full and regular; appetite delicate, with nausea; urine copious, high-coloured, very muddy at the bottom, with a pink sediment; sleep disturbed from pain in the side; a numb, cold, painful sensation in the back; a hungry pain in his stomach, particularly when that organ was empty.

> ℞ Ammon. carbon. ʒss. Camphoræ ℈i. Pulv. antimon. grana xv. cons. Rosæ. canin. q. s. ut. fiant boli vi. unus tertiâ horâ quâque capiendus.

This medicine produced perspiration, which removed the coldness from the back, and the heat from the hands and feet; bowels open; pulse and other symptoms as usual.

January 15th, 1819.—Applicr. Hirud. xx. lateri dextro.

19th.—Leeches answered well, but produced great debility; pain the same; appetite bad; stools yellow; sleep restless; spirits cast down. To live on a light and nourishing diet.

> ℞ Ungt. hydr. fort. ℥ij. Camphoræ ʒij. M. One drachm to be rubbed into the right side every night at bedtime.

29th.—Mouth began to be sore; breath offensive; pain relieved; able to lie on either side; urine high-coloured; bowels costive; appetite bad; tongue furred; pulse 68, and regular; coldness in the back still continues.

> Emp. calidum admoveatur dorso. ℞ Pulv. gum. guaiac. ʒss. Sulph. antim. precip. pulv. conii maculati ā ℈i. M. Divid. in partes vi. Capiat i. bis in die. ℞ Ext. papaver. alb. gr. xv. Pulv. cinnam. ā gr. x. M. Divid. in pil.l. vi. Duæ hora somni sumendæ.

These pills were given with a view to sooth a great irritability which was experienced in the bladder, which caused his sleep to be disturbed, by getting out of bed eight or ten times to make water.

> ℞ Pulv. jalapæ ʒss. Syrupi Rhamni ʒij. Aq. menthæ. pip. ℥iss. M. ft. haust. cathart. statim sumendus. The mercurial friction discontinued.

February 5th.—Opening medicine operated well; tongue furred; pulse regular; urine high-coloured and thick; mouth better; irritation of the bladder relieved; slept more comfortably; pain in the right side not so well as two days ago.

> Ordered the mercurial ointment to be again rubbed in every night. Contin. pulv. et pilulæ.

12th.—Felt great soreness in his side, with pimples, owing to rubbing in; gums affected with mercurial action; bowels not open; appetite bad; pain the same; plaster afforded much relief to the back; the gland in the groin less troublesome.

> Repet. haust. cathart. statim; cont. Pulv. et Pil.l. Mercury discontinued.

18th.—Tenderness in the gums gone, breath less offensive; tongue cleaner, appetite better, rest more tranquil; rode out when the weather was fine; opening medicine operated copiously; the pain essentially better; the occasional increase of it might arise from the pressure of hardened feces.

> Contin. pulv. Mercurial friction commenced.

26th.—Pain in the hypochondriac region less acute; mouth affected; the mercury from this time discontinued; appetite better; patient stronger; bowels and pulse regular; tongue cleaner; urine paler coloured, with a lateritious sediment. Upon the whole, appeared much recovered.

Contin. pulv. A nourishing diet, with wine and water, allowed; cider, beer, spirits, and over-exertion to be carefully avoided.

March 5th.—Able to walk and ride several miles when the weather permitted; strength gradually increased; appetite improved; pain lessened; refreshed and strengthened by his sleep; was so well, that, from the 8th, all medicines were discontinued. His sallow countenance, however, was indicative of remaining visceral disease, and his advanced age appeared to prognosticate a fatal return of his complaint.

28th.—Troubled with a violent itching in the skin, which is tinged yellow; great languor, loss of spirits, bad appetite, sickness, diarrhœa, tongue furred, pulse 80, and full; urine high coloured, rags dipt in it were died yellow; evacuations clay-coloured; pain in the right side and stomach; sleep disturbed by night.

℞ Pulv. rhei. Sodæ subcarbon. ā ʒss. Sapon. Hispan. ʒj. M. Divid. in pil.l. xxiv. Capiat iij. bis terve die.

April 1st.—Sickness abated, appetite rather better; languor and debility the same; pain not so violent; tongue less furred, diarrhœa, with light coloured evacuations; urine high coloured; conjunctiva of the eyes and skin more yellow.

Contin. pilulæ.

7th.—Much the same in every respect. Ordered ʒiss. of strong mercurial ointment to be rubbed over the region of the liver every night at bed-time; walked out and took horse exercise when the weather permitted. The ointment was continued for some time, but not so long as to affect his mouth. Six weeks from the first commencement, the yellowness disappeared; appetite returned; strength increased; appeared quite well.

He continued in the uninterrupted enjoyment of health during the summer and autumn, occupying his attention by agricultural employments, as he was a man fond of doing something, and even at times more than his strength could bear. This was the case several times during the harvest, although such exertion did not produce violent pain in the right side. His complaints remained dormant until the 8th of November, when he experienced a slight pain in right side, which continued only a few days, and then removed into the region of the spleen. The pain was constant, but became occasionally, in the course of the day, lancinating, excruciating, or throbbing, not increased by taking a deep inspiration, or by the motion of walking. It was aggravated by pressure on the part, or by coughing, and, after violent paroxysms, the external parts became sore. If the patient laid down in bed with the pain, the paroxysms increased to such a degree as to oblige him to resume an erect posture. Could not lie on the left side, and was frequently obliged to get out of bed and sit up many hours during the night, owing to the violence of the pain, which frequently shot up under the ribs of the left side. Skin temperate, except the palms of the hands and soles of the feet, which were generally of a burning heat. This febrile disposition extended over the whole body when the pain was violent. Tongue, with a slight white fur upon it, never got dry; seldom thirsty, except when in pain; appetite good. When the stomach was full, felt an unpleasant sensation, which seemed to arise from its pressure on the spleen. When that organ was empty, had a gnawing pain, which was relieved by taking nutriment. Bowels seldom open, without some cathartic medicine; feculent matter, dark, hard, and offensive; urine copious, high coloured, frequently muddy, depositing a lateritious sandy sediment. Pulse invariably 70 to 80, good and regular, what I should call a healthy pulse. Recommended the patient to live on a light and nourishing diet, such as gruel, broths, light puddings, and plain animal food; to avoid wine, spirits, and beer. The broths were very strong, even the essence of meat thickened with bread, forming a pulp; of this he took 4 oz. every three or four hours. By this light but nourishing diet, his stomach was never filled or distended; so that pressure against the diseased liver and spleen, which created excruciating pain, was in a great measure prevented. I was very solicitous to keep his bowels secreting, as a relief to irritation, and did this without teasing them. The medicine he took at this time was very little; for, being ill so long, he had got completely tired of it. I gave him only five grains of the mercurial pill every night at bedtime, to keep up a secretion of bile.

The surgical means used to restore him were repeated bleedings, leechings, cuppings, and blisterings, all applied to the seat of the disease. By these remedies he was gradually recovered; and, as the spring of 1820 advanced, he became much better.

November 1, 1820.—He had a return of the pain in both his sides, with a great fulness and hardness of the abdomen, with œdema of both legs and thighs.

℞ Pil.l. scillæ ʒiss. Pulv. digit. gr. vi. Nitr. potass. ℈j. Divid. in pil.l. xxiv. Capiat ij. bis terve die.

He rubbed into the region of the liver ʒiss. of ungt. hydrarg. fort. for three nights, when his mouth became affected.

8th.—Mouth sore; pain relieved; slept better; bowels open; urine copious; fulness gone; œdema of the lower extremities subsided.

December 8th.—Swelling about the legs and thighs gone; felt a deep-seated pain in his left side; could lie on his back when his stomach was empty; but, when full, could not lie down without excruciating pain; bowels open; appetite good; pulse regular.

January 8th, 1821.—No swelling remaining; urine copious, with a pink sediment; bowels open; tongue clean; felt the pain in his right and left sides, but not to that violent degree so as to disturb his rest as formerly.

As the spring advanced, he had a dry tickling cough, which teased him by day, disturbed his sleep by night, and irritated the diseased viscera, so as greatly to aggravate his sufferings. The cough was so troublesome, that, in the month of May, I was consulted respecting it. At that time the tracheal and bronchial membranes were in an irritable state, with a thin, frothy expectoration; dyspnœa, with a rattling noise in breathing, but felt no pain on taking a deep inspiration; could lie best on his left side; bowels open, tongue clean, appetite fastidious; pulse 80, and good; skin temperate.

℞ Oxymel. scillæ. Tinctura camph. comp. ætheris vitriol. ā. ℥ss. M. Capiat. cochlear. parv. ter in die.

The drops were continued for a fortnight; but not finding his cough better, they were left off.

He remained much in the same state through the summer. About the beginning of August, his legs and thighs became œdematous, with ascites; pain in the right and left hypochondriac regions much the same. On the 24th of August, began taking the following pills.

℞ Pil.l. scillæ ℈ij. Pulv. scillæ gr. vi. Pulv. digit. gr. iv. Divid. in pil.l. xxiv. Capiat unam bis terve die.

The pills were continued till the beginning of November, when the œdematous state of the lower extremities and abdomen were entirely removed; the pain relieved so, that the patient was able to sleep tolerably well by night; cough troublesome, with an expectoration of viscid phlegm; the quantity about 1 oz. in 24 hours. The winter was passed without any appearance of œdema, any increase of cough or pain; bowels regular; appetite and pulse good.

The year 1822 commenced with a pain in the region of the left kidney; urine copious, with a red sandy sediment; cough troublesome; dyspnœa, with very quick respiration on any exertion; bowels regular, appetite fastidious, but not bad.

In the month of March, after experiencing much pain in his left kidney since the commencement of the year, he was alarmed at evacuating 4 oz. of bloody urine, with several particles of gravel as large as pins' heads. I recommended one tea-spoonful of calcined magnesia to be taken twice a day, mixed in milk, as a solvent of calculi. This advice was neglected till April, when he was again alarmed by the occurrence of the same circumstance; the quantity was 4 oz., with a gravelly sediment.

On the 27th of April, had no evacuation for two days; was called to administer a purgative injection, which did not rest long in the rectum, but produced a comfortable natural evacuation; felt the fulness in the abdomen relieved; pain in the left kidney, spleen, and liver; cough the same.

Sunday, 28th.—Passed a troublesome night; made several useless attempts to make water; pain in the left kidney; no fulness in the region of the bladder; felt a numbness in his right hand; had perspiration without a urinous smell; universal itching in his skin; pulse good. At noon, introduced the catheter, but found no urine in the bladder.

29th, 6 *a. m.*—After a suppression of urine for 34 hours, evacuated 4 oz. of high coloured urine without pain; a few small calculi to be observed at the bottom of the vessel; bowels not open; irritability and sickness at the stomach. *Vespere.*—Made 4 oz. of water; bowels not open; capt. pil. cath. ij.; abdomen hard, and sore on pressure.

30th.—Made no water since two o'clock yesterday afternoon, passed a restless night, hiccup troublesome, bowels not open, abdomen hard, tense and sore to the touch. Introduced the catheter, but found no water. Recommended an injection.

May 1st.—Had incessant hiccup, no sickness, bowels twice open, passed no urine, slight perspiration, without a urinous smell; itching in the skin; pain in the left kidney, no pain in the bladder; fulness and tenderness of the abdomen. Introduced the catheter, but found no water. Recommended a teaspoonful of cold water to be given and frequently repeated for the hiccup; peppermint water to be given in the same way, &c.; a blister to be applied to the pit of the stomach; but the patient was so averse to any thing which might give pain, that he would not apply it.

2d.—Had a restless night; no stool or evacuation of urine, no perspiration, tongue furred, mouth dry, thirst, no sickness, hiccup incessant, pain in the abdomen, with soreness; no pain in the kidneys or bladder; pulse good.

Capt. pil. cathartic. et mist. magnes. sulph.

3d.—Passed a better night; no stool, no urine; pain in the region of the spleen; abdomen very hard and tense, with tenderness; cough troublesome, with a yellowish expectoration; respiration, with a wheezing noise; thirsty; continued hiccup; skin temperate; pulse 84, and good.

*Vespere.*—Very restless, with great anxiety; pain in the region of the spleen, tension and hardness of the abdomen; no stool or urine, made several efforts, but could not evacuate any; hiccup incessant; no thirst, tongue cleaner, no sickness; a little moisture on the skin, with much itching; pulse 88, and good; cough troublesome, breathing difficult.

4th.—Had some sleep in the night; no stool or urine; senses much impaired; hearing, sight, and speech nearly gone; skin temperate, with moisture; pulse 80, and feeble; appeared in a dying state. Towards afternoon, grew much worse; extremities cold, pulse very weak and low, breathing stertorous, with a rattling noise. At six o'clock in the evening, he expired.

### DISSECTION TWENTY HOURS AFTER DEATH.

*Externally.*—Nothing particular struck the attention, except a remarkable softness of the abdomen, compared with its hardness and tension while living. *Internally—Chest.*—The lining of the trachea and bronchia much thickened, but no recent marks of inflammation. The bronchial glands much enlarged, with indurated white spots or tubercles in their substance, the size of garden peas. The pleura pulmonalis of the right lung, completely adherent to the pleura costalis of the same side, was with great difficulty separated; several hard concretions found in the middle to be about the size of hemp seeds. The left lung free from adhesions, and in all respects more healthy than the right. The remains of the thymus gland about the size of a walnut, much indurated, partaking of the same disease as the liver, except a small portion of its upper extremity. The pericardium healthy, containing 3 oz. of liquor pericardii. The heart free from disease; the coronary vessels gorged with blood.

The omentum, instead of covering the intestines, matted together in one heap. The liver very much enlarged, occupying all the epigastric, the greatest part of the left hypochondriac, extending over the superior half of the umbilical regions. The right lobe very hard; the anterior edge much thickened; the concave and convex surfaces studded with several hard white tubercles, some as large as hazel nuts, others the size of garden peas. The small tubercles were contained in cysts, and easily separated, giving, in my opinion, a good representation of the incipient state of the disease. The larger tumours were so adherent to the substance of the liver, that it was impossible to separate them. About two inches posterior and inferior to the greatest convexity of the seventh rib, were three very strong ligamentous adhesions, binding the liver to the right side; at the root of these was the broken bag of an abscess, about one inch in circumference. On cutting into the substance of the liver, it presented an entire mass of disease, being converted into a yellowish, gristly substance, very hard and tough, intersected by streaks of more healthy but pale-coloured liver. The left lobe and lobule of Spigelius were more healthy, but very pale in colour. The gall-bladder was gorged with dark coloured bile. The spleen was much enlarged; the superior and inferior extremities were very soft, extending more than an inch into its substance; the middle portion feeling and looking more natural. The pancreas free from disease. The stomach and bowels bore marks of inflammation; the jejunum and ilium had several gangrenous places on them.

The kidneys much larger than natural. The pelvis of the right formed a large thin membranous bag, containing 4 oz. of fetid urine. In its cortical structure was a small abscess, containing a thick medullary substance. In the left were found several large abscesses, containing fetid matter. From the pelvis of this kidney were taken eight small calculi of various shapes and sizes. Both ureters were totally obstructed by calculi. The urinary bladder contained two ounces of bloody urine.

*Remarks.*—The case recorded presents a very extensive and long-standing scirrhosity of the liver, resisting the most active measures for its cure. The great pain experienced in the right side, with an inability to lie on the left, may be accounted for by the formation of an abscess, ligamentous adhesions, tubercles, and scirrhus. The pain commencing in the right, and flying to the left side, proves that an indurated liver precedes an enlarged spleen. This has been explained by Morgagni and others, by ascribing to the indurated and unyielding vessels of the liver an obstacle to the usual flow of blood from the spleen, while an increasing quantity continues to enter it by the splenic artery. An accumulation of blood, and the consequent enlargement of that viscus, become the necessary result. The same author found an enlarged liver generally accompany an enlarged spleen, which is proved by the present dissection. It was a common opinion among the Ancients, that a diseased liver always preceded dropsy, and that a morbid state of the spleen soon afterwards succeeded. Although modern dissections do not confirm this order of morbid events, yet, in every case of established ascites, one of these viscera has been found diseased.

It was for this reason that Albertini considered this species of dropsy incurable; but in the present case, the œdema of the extremities, with ascites, always yielded to the pills prescribed. The gnawing pain felt in the stomach, when empty, might arise from an acrid secretion of the gastric juice irritating the internal coat of that organ, which was relieved by taking a little food so as to dilute the acrimony of that juice. The intestines were unusually costive, and generally required some stimulus to urge them to perform their function; but the feculent matter was generally tinged with bile, which showed that the secretion of that fluid was carried on by the left lobe, and Spigelian lobule of the liver. The return of his complaints, with an increase of pain which took place during the winter, might arise from the cold obstructing the capillary vessels of the skin, and causing a larger volume of blood to be circulated among the internal organs; and therefore an increased circulation of blood through the spleen and liver caused an increased action, and consequently increased disease.

In the treatment of liver affections, I should think calomel, the mercurial pill, or the stronger ointment, very useful auxiliaries, added to bleeding, blistering, and cupping. A slight salivation always relieved the patient.

*Mevagissey, Cornwall*, 17*th June*, 1822.

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## V.

## *Iritis successfully treated by large and powerful Evacuations in the Commencement of Attack, and these again followed up by the Use of Mercury.* By John Evans, M.D., Physician to the Buncranna and Fahan Dispensaries, County Donegall.

I am induced to forward the following case of severe and deep-seated ophthalmic inflammation for a place in your Journal, as well from its aggravated nature, as to show that depletory measures, with the usual antiphlogistic means, were quite inadequate to the cure, till the system was put under the influence of mercury; and again, that this medicine would have been injudicious or prejudicial, without having first premised the most active evacuations.

A married woman, aged about 50, following the occupation of cook, tall, and usually enjoying good health, was put under my care on the 12th November last (1821), in consequence of an ulcer in the throat, situated in the left tonsil. This affection was believed to be venereal, as well from its character and history, as from the fact of her husband having had, a short time previously, phimosis, with chancrous ulceration behind the prepuce.

Mercury, in the form of pill and friction, was ordered, and to be continued till its effects became apparent in the system, and until the disease was removed.

These remedies were continued for about five weeks; the ulcer of the throat healing, but the mouth affected rather severely from the medicine. After some time, this also disappeared, and the woman got stout and in good health.

In the early part of January 1822, she was exposed to a long ride, and, during this time, caught cold. Inflammation of the left eye came on, and became daily worse, with general symptoms of fever. She lived 10 miles from my house; and when I was first consulted on this attack, every hope of saving the eye was gone. The cornea and sclerotic coat was one uniform mass of redness. It resembled a piece of raw flesh. Vision was quite destroyed, and no appearance of pupil.

She was weak, and looked ill, and her complexion had left her. Her nights were sleepless, and much irritation was present, as well local as general. Leeches had been frequently applied with effect. Cooling purgatives, darkness, and saturnine lotions to the eye itself. A seton was put in the neck, and a blister behind each ear.

March 20th.—Until this date, the right eye remained unaffected; but the first affected one was always painful and uneasy. The sound eye now became painful, and looked red. She complained of a peculiar *itchiness* over the eyebrow; and this sensation alarmed her the more, because it ushered in the attack of inflammation destroying the left eye.

The pain now in the sound eye became more and more severe. She could not bear the least light. The pain extended over the forehead; and the system partook of the local disease to a considerable extent. No discharge from this eye. No affection of the iris yet manifesting itself; for it was circular, and as large to appearance as it usually was. The sclerotic coat had taken on a general muddiness, and the eyelids were nearly closed, afraid of admitting any light, as this caused the most intolerable pain. Over the conjunctiva an effused substance appeared, resembling coagulable lymph. It could be pushed upwards by the finger, and downwards also. Pulse 110, but feeble. Thirst, and other appearances of febrile irritation.

On the above date, the temporal artery was opened low down on the right side, and it was allowed to bleed till syncope came on. She was kept erect. We found that we removed ℥xxvj.

of blood, which, on cooling, presented a buff fully half an inch thick. By the point of a pin, we could raise up a large mass of it. Calomel, senna, and Epsom salts, were given to ensure full effects. Every thing antiphlogistic ordered.

22d.—Feverish symptoms, as well as pains of the eye, with uneasiness, had been lessened by the bleeding; but they are again aggravated. The pain of head and eye distressing, and the least light intolerable. A vein was opened, and allowed to bleed till syncope came on. We found that ℥xxij. of blood were very quickly removed. The buff on this, on cooling, was as great as previously. Syncope recurred at intervals for some hours afterwards.

*P. m.*—The last bleeding relieved her much, but the eye still painful; and I now bled to ℥xx., which was followed by fainting, with muscular contractions in various parts of the body, so severe as to excite alarm. She was kept horizontal. The head and eye relieved considerably; and there were full effects from the purgative.

23d.—*Nine* drops of the prussic acid, prepared after Scheele's process, were taken in the course of the day in gruel. Great weakness, yawning, languor, and paleness; no sleep. Last blood as buffy as formerly; pulse 100, and small; no discharge from the eye.

24th.—Acid. hydrocyan. gutt. i. 2da hora. Head now easy, and almost free from pain. Sneezing. She is better in every respect. *P. M.* Not so well as in morning, complaining that the eye is too large for the socket. Calomel, senna, and salts, to cause full effects. Four leeches to the eye, with the desired intention.

25th.—Lower margin of iris is obviously ragged, and *not* circular. This was minutely inspected before, but nothing of this appearance could be discovered. Pain in the eye less, but the muddiness of it is unabated, and still no discharge is seen. Four more leeches to the lost eye with effect. Prussic acid continued.

26th.—Pain continues diminished. The irregularity of the iris appears thus . Contin. omnia.

27th.—No sleep. Complaining of being hot and restless. Eye very painful. Every symptom aggravated.

Omitt. acid. hydrocyan. ℞ Decoct. sarsap. ℥iv. mane et vespere. ℞ Mur. hydrarg. gr. ij. solvenda in aquæ ℥x. Capiat. ℥ss. bis die. Capiat etiam pil. hyd. gr. v. ad vi. bis de die.

30th.—Contin. omnia.

April 1st.—Eye much improved. She says "her eye is better." It looks decidedly less muddy. The pupil has lost its irregular appearance, and assumes now an oval shape, rather than a perfect circle. It is larger than hitherto.

Contin. omnia.

April 6th.—Mouth smartly affected from the medicine. Ptyalism.

May 1st.—The mouth continued to show mercurial irritation up to this date. The mercury was occasionally resumed and intermitted. We used it in the form of ointment, by introducing it into the arm-pits, as practised by Dr Duncan junior, from the practice of Mr Beer. Great languor, nausea, and vomiting, with sleepless nights, came on, all which were attributed to the effects of mercury. The mouth showed mercurial irritation up to the above date; and now every thing was omitted. The sarsaparilla followed up. The diet gradually was permitted to be more nutritive. The eye, on the 25th May, was natural, and vision in it perfect.

July 15th.—She continues well. The eye originally affected remains useless.

A very few remarks will suffice on the above melancholy case. Whatever the nature of the affection was which destroyed the first affected eye, certainly the same affection extended itself to the other; and yet it is strange that it was so slow in manifesting itself.

Whether it was of *venereal* origin or not; or whether it arose from the effects of the previously administered mercury, we will not now take upon us to say; but, to the effects of cold and fatigue acting on a weakened constitution, we are disposed to attribute the occurrence of the disease, more especially from the *effects* of the mercury. What the nature of the system is at this precise time, we know not.

The peculiarity of the iris, when examined in the various stages of the above disease, is worthy of attention. At first, no evident symptom could be found which pointed out inflammation of it, save the deep-seated pain, the intolerance of light, and headach; and yet, all these are common to other inflammations of the eye.

Whence and how it happened, that the irregularity of the iris appeared only on the 25th, is also singular; and I believe that this appearance of the iris, with its diminished circumference, are characteristic of inflammation going on in this part. Here the attack was sudden, the pain very severe, and the constitution violently affected from the local disorder. Now, these symptoms are not usual in iritis; at all events, in about five cases which I have seen, the complaint was slow, the pain not severe, but the eye dull and muddy, without any discharge, and the state of the iris above alluded to, were considered sufficient diagnostics of this disease.

The cases seen in the Royal Infirmary Hospital in 1820, had, from their first entering there, the ragged appearance of the iris; but, as in the present case, the inflammation possibly may exist antecedent to this state manifesting itself in this body.

In the Infirmary cases, all succeeded to the administration of mercury for the cure of venereal symptoms. But the disease here had no such violent characters as we have described in ours; nor was there any *immediate* danger of the loss of sight; while here, the sad fact of one eye being lost, pointed out how untractable the affection was which attacked the other.

Two circumstances in the above case deserve to be noticed. *First*, Bloodletting, and that not in an inconsiderable degree, aided by other powerful antiphlogistics, was unable to cure the disease. She was in bed—confined from light—on the lowest regimen, and other auxiliaries; but no permanent good resulted.

*2dly*, The *prussic acid*, even after the evacuations had been freely and fairly tried, appeared to want entirely those sedative and other good qualities attributed to it. I have no doubt but it did harm, inducing heat, restlessness, &c.

*Lastly*, Mercury, *after* the depletory measures, appeared to produce all the good effects reported by others in curing this complaint. Would it have done so, without having resorted to the evacuations? I am of opinion that it would have been highly prejudicial, had it alone been trusted to conquer so aggravated a malady. The pain, the intolerance of light, and the amazing buff seen on the blood, all tend to warrant this conclusion. In a case *similarly violent*, I would follow the same practice, and would in every case endeavour to bleed till syncope supervened.

Dr Home, in one of the clinical cases above alluded to, kept the eyebrow of the affected eye covered by the extract of hyoscyamus. We did so here.

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## VI.

## *Case of Obliteration of External Iliac Artery, followed by Gangrene and Mortification of the Foot and part of the Leg.* By JOHN BRYANT, Surgeon.

I WAS called, on 21st January, to see Mrs F., ætatis 28, sallow complexion, tall and well proportioned, with an acute pain in the right hypogastric and iliac regions, increased on pressure. Menstruation regular; pulse 100, and full; bowels costive; much thirst and heat of the skin, with slightly furred tongue. Two days before, when complaining of nausea, and other dyspeptic symptoms, she had taken a dose of salts, and some empirical pills, which operated violently.

Venæ sectio è brachioad ℥xij. Applicatio fotus partibus dolentibus, haustus olei ricini tert. quaq. hora sumendus, donec alvus copiose responderit.

22d.—Bowels have been freely opened; blood drawn yesterday firmly coagulated and sizy; pulse 90, and not so full; skin smoother; thirst less; pain in the hypogastrium less; nausea continues.

Haustus salinus aperiens effervescens quarta omni hora sumendus.

23d.—Pulse 90; pain less violent than before; bowels open.

Med. repetantur. ℞ Pulv. Dov. gr. v. in pil. cum haustu singulo.

24th.—Pain increased since yesterday; pulse 94; bowels open; complains of the draught being unpleasant.

Venæ sectio ad ℥xij. Cont. pilula sine haustu.

25th.—Symptoms increased; pulse 100, and hard; blood drawn yesterday sizy and buffy; tongue furred; urine high coloured, and bowels open.

Venæ sectio ad ℥xij. Medicamenta continuentur.

26th.—Pain in the right iliac region ceased, with tenderness over the pubis; blood drawn yesterday buffy, but not cupped; describes a most excruciating pain in the course of the left ureter, extending to the kidney; suffers much in making water, though not increased in voiding the last drops; bowels open.

Cucurbitula dorso et effluant sanguinis ℥xij. ℞ Ext. conii gr. iv. pulv. digital. gr. ss. fiat pil. omni 4ta hora capienda. Haustum quoque superbibens salinum amygdalæ. Coxæ tepidarium ad partes dolentes.

9 o'clock *p. m.*—Pain in the kidney much abated, and only felt occasionally in the left iliac region.

Omittantur pil.l. conii, et sufficiantur pil.l. sapon. cum opio gr. v. omni 4ta hora sumenda.

27th.—Has passed a tolerably good night, and nearly free from pain, except slight uneasiness in the left groin, which is increased on pressure, but unattended with swelling; pulse 80; bowels open.

Med. cont.

28th.—Rested well during night; in other respects, she is same as yesterday.

Mist. cont. coxæ tepidarium adhibendum.

10 *p. m.*—Complained whilst in the bath of sudden numbness, and coldness of left extremity, succeeded by severe pain in the calf of the same leg.

Lin. camph. anodynum in suram fricandum.

29th.—Coldness in left extremity, and pain in the groin continue, but less severe in the calf of the leg; bowels open; pulse 100.

Med. cont.

30th.—No alteration in symptoms; Mr C. M. Clarke saw her.

Med. cont.

31st.—Coldness in left extremity, with great diminution of sensation to the touch; pain extended from the calf to the ankle; pulse 100 to 120; little thirst, skin rather moist, tongue natural, bowels open.

Med. cont.

February 1st.—Symptoms as yesterday; petechial spots on the foot, with total loss of sensation, and increased coldness of the foot; the calf is swollen, and exquisitely sensible; no pulse perceivable in the femoral artery; tongue and urine natural.

℞ P. guaic. bol. ʒss. Decoct. cinch. ℥iss. M. ft. haustus quinta quaque hora sumendus. Cont. pil.l. sapon. c opio hora somni. Cataplasma ex sinapi pedi sinistro.

2d.—Symptoms much as yesterday; pulse 160, irregular, with tendency to diarrhœa.

Med. cont. Adde ad haustum sing. opii gtt. v.

3d.—Mr Brodie saw her; pulse 170, and irregular; tongue natural; bowels open; ordered to discontinue the cataplasm, and apply a flannel roller from the foot to the groin.

Med. cont.

4th.—Pulse 140, and more regular; tongue more natural; diarrhœa increased; foot and leg the same.

Med. cont. Mist. cret. opiat. hor. somni.

5th.—Has passed a restless night; pain in the leg very severe; inguinal pain continues; bowels still relaxed; pulse 120, and more regular; tongue clean; complains of pain in the right leg and foot, with symptoms similar to the left. Mr Cline saw her this morning with Messrs Brodie and Clarke.

Haust. salin. camph. 4ta quaq. hora. Lotio evaporans pedi et part. dolent. Cibus farinaceis conficiatur.

10 *p. m.*—Pain and fulness in hypogastrium, and desire to void urine without effect; a pint and a half was consequently drawn off by catheter.

6th.—Has slept greater part of the night; diarrhœa checked;

pulse 160, and irregular; foot more extensively livid; the line of separation between the muscular and tendinous portions of the gastrocnemii muscles faintly discernible; calf much tumified; has passed urine freely.

Med. cont.

7th.—Has slept well; pulse 120, small and weak; tongue clean; has had two alvine evacuations; passed urine freely; right leg continues very painful; lividity in left foot gradually increasing, and pain increased in left groin.

Med. cont.

8th.—A restless night; pulse 130, small, hard, and jerking; right leg less painful; bowels open; line of separation less discernible, livid appearance having extended farther up the leg; petechial spots more numerous; calf exquisitely painful to the touch; vesicles (*phlyctænæ ?* *) observed two inches above the ankle.

Med. rept.

9th.—A restless night, having taken only half the opiate; pulse 120; bowels free; right leg more free from pain; left leg much as yesterday.

Med. rept. sine opio in haustu.

10th.—Restless night, and violent throbbing of forehead; pulse 110; diarrhœa increased; foot now of a glossy purplish hue, and very painful to the touch.

Decoct. cinch, cum mist. salin. Diæta modica.

11th.—Watchful night, with short intervals of rest towards morning; bowels better; pulse 130; tongue clean; pain more extensive, though less severe, in the leg; skin not so dry.

Med. rept.

12th.—No sleep; pain in forehead; pulse 140; diarrhœa returned; lividity of foot increasing. Her sufferings this day seem intolerable.

℞ Inf. cuspar. et ammon. carb. in haustu omni 3tia hora.
Haust. anod. hora somni.

13th.—Has had little sleep; pulse 110; tongue clean; diarrhœa ceased; leg less painful; vesications increased in size.

Med. cont.

14th.—Has had some sleep; pulse 110; bowels open; leg more painful; vesications extending higher up.

Med. cont. Haust. anod. cum tinct. opii ʒi. h. s. sumend.

15th.—A little sleep; pulse 110; bowels rather costive; pain in left groin; leg not quite so painful as yesterday; the cluster of vesicles has now coalesced; the thigh œdematous.

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* We observe here, that the elevations of the cuticle, which occur in the course of gangrenous inflammation, contain a purple serum, and have therefore a livid base, and are more accurately named *phlyctænæ* (φλυκταιναι) than vesicles which are very different objects.—Editor.

Cont. med.

16th.—Has rested well; pulse 120; bowels costive; leg as yesterday; vesicles have broken.

Haust. rhei statim.

17th.—Has slept well; pulse 120; left leg and labia pudendi painful and œdematous.

Fotus ad pubem applicandus. Cont. alia.

19th.—Has slept better, though she is very weak, faint, and low; pulse 130; ordered to take half a pint of brandy daily.

℞ Pil. galban. comp. ad gr. v. in pil. ij. h. s. sumend.

20th.—Has had a restless night; pulse 116, and fuller; toes of the left foot withered, shrunk, and dry; leg as yesterday; pain in the groin less.

Cont. med.

22d.—Little variation in the symptoms; the night pills being loathsome, the anodyne draught was resumed; has slept better; pulse 120; œdema of the thigh somewhat less; left iliac region and calf of leg still painful.

Cont. med. Adde haustibus singulis tincturæ opii gtt. v.

27th.—Pain in the leg very severe; is not so weak as might be expected.

Capiat vice tinctur. opii, guttæ nigræ gtt. xxiv. ter de die, et gtt. l. hor. som.

March 2d.—Symptoms continue nearly the same; the black drop procuring little or no rest, was omitted,

Tr. opii ʒi. ext. conii macul. gr. v. ad sing. haust. addenda.

9th.—Symptoms nearly same; foot is fast separating; she is looked upon as hopeless.

Cont. med.

16th.—Sphacelation has increased rapidly; pain has become more moderate; bowels regular; pulse 110; appetite better; rests better, except some disturbances of a domestic nature that trouble her.

Cont. med.

21st.—The bones are exposed; bowels regular; pulse 100; appetite good; strength improved.

Cont. med. Cataplasm. lini suræ omni 8va hora. Omittatur lotio evaporans.

28th.—Bones more exposed; pulse 110, and fuller since last report; rests well, and strength improving.

Rept. med.

April 1st.—Sphacelus going on rapidly; secretion of pus healthy; does not rest quite so well, the mind being disquieted.

Cont. med.

14th.—A constant nausea continues, arising seemingly from the impure atmosphere of the confined room; bowels regular; appetite diminished.

Mist. salina effervescens adhibeatur.

16th.—Nausea continues.

Haust. infus. cusp. cum spiritu lavend. c. ter de die. Haust. anod. hor. somni cum tr. opii ʒiss.

20th.—Nausea relieved; appetite increased. The amputation of the bones was performed by Mr Brodie as close to the stump as possible, in order to relieve the patient of the offensive smell from the sphacelated portions.

29th.—Granulations are looking healthy; appetite good, and general appearance much improved.

July 6. Mrs T.'s health, since last report, has been gradually mending; she is daily gaining strength; complains of no pain; granulations are healthy, with little discharge of pus; but the fibula is exfoliating one third below the knee. No pulsation can be felt in the artery, as far as the bifurcation of the common iliac; nor can any aneurismal swelling, or other unusual appearance, be traced in its course.

Mrs T. had been subject, for a period of five years, to occasional pains in the region of the pelvis, during which time she had also suffered from three or four attacks of gout in the right extremity. Ten months before I was called to her, she had received, when walking on the pavement, a very trifling blow from the basket of a laundress, which was followed by slight temporary pain; had likewise a little enlargement of the inguinal glands, occasioned by excessive exercise on horseback. These, as far as I can learn, are the only causes which appear to have given rise to inflammation, and subsequent obliteration of the artery. Messrs Cline, Brodie, and Clarke, who have never seen a case exactly alike, were of opinion that the obliteration was produced by injury done to the external iliac artery; and it may be remarked, that the symptoms consequent upon the obliteration were nearly analogous to those, arising from the application of a ligature to the external iliac, or femoral artery. In the process of nature, respecting the separation of the dead parts from the living, there was nothing materially unusual, gangrene having stopped midway below the knee. The only anastomosing vessels which supplied the extremity, were those derived from the internal iliac, as the lateral-sacral, gluteal, ischiatic, internal pudic, and obturator, which inosculate with the branches of the profunda, and those of the main trunk; and it may naturally be supposed, that those branches would undergo considerable dilatation. It may be seen, that amputation of the bones only was performed, allowing sphacelation to go on, and

Nature to do her utmost; because, if amputation had been performed on the mere principle of making a good stump, whilst there was pain and swelling above, the bones being inadequately supplied with blood, might ultimately be detached from their articulation, which would have rendered a second amputation necessary, and which, from the want of power, in all probability she never would have survived. It will be proper to observe, that there were some degrees difference of animal heat in the diseased limb, as are in all cases of obliteration; it was however not exactly ascertained. The sphacelus which took place, and which, in such cases, is termed dry gangrene, differs from that produced by the common spontaneous or traumatic gangrene, in as much as there is a deficient supply of blood throughout the limb, from the deficiency of free anastomosis of the vessels. Hence it follows, that the limb is very small, and the discharge of pus but scanty. It is right to remark, that Mrs T. lay during her illness constantly on her back, with her head somewhat raised, by which means pressure on the gluteal and ischiatic arteries retarded the action of the anastomosing vessels; but, from the extreme irritability of the system, and constant pain she was in, combined with an almost total deficiency of power, it was a matter of impossibility to enjoin laying on her right side, or any other position, in order to favour collateral circulation. The Etiology is involved in great difficulty. The blow she received from the basket was but trivial, and had happened ten months before. How far metastasis from gout may have been an exciting cause, I am unable to say.

50, *Terrace*, *Edgware Road*, *London*.

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## VII.

## *Case of Fungus Hæmatodes of the Eyeball, Cured by Extirpation of the Eye.* By J. H. Wishart, F. R. S. Ed., Surgeon in Ordinary to his Majesty in Scotland.

J. L. æt. 9., son of Mr L., factor to a nobleman in the neighbourhood of Edinburgh, was brought to me on the 12th May 1821, on account of an affection of the left eye. On examination, the eye was observed to have a general turbid appearance; it was devoid of lustre; and, on minute inspection, the cornea was found to be transparent, but numerous vessels passing over the sclerotica into it. The pupil had a slightly serrated appearance; was moderately dilated, but did not change its size on variations being made in the degree of light. In the posterior chamber an opacity was observed, resembling a yellow dusky membrane, lining the whole posterior part of the eyeball, more distinctly perceived when the eye was viewed laterally. The vision was nearly gone; the eye watered profusely, especially when exposed to the light, which occasioned considerable pain and irritation; had at times a shooting pain in the frontal edge of the orbit, of short duration; pulse natural; general health good.

About two months ago received a blow on the eye while at school. The afternoon of that day it gave him no uneasiness, but next morning he felt great pain in the eye, and the vision was almost entirely lost. The effects of this injury were apparently removed by free local bleeding, and antiphlogistic treatment under the care of Mr Stewart of Queensferry; and in a few weeks he was able to return to school. About ten days ago, the eye again became inflamed and painful. Six leeches were ordered to be applied to the forehead, and a dose of infusion of senna to be given in the morning.

May 19.—He has been twice freely bled with leeches; has had some transient pain in the eye and orbit; slight effusion of puriform fluid in the lower part of the anterior chamber; bowels have been freely opened; and has taken a grain of calomel night and morning till to-day; mouth considerably affected; eye fomented three times a day with a decoction of hyoscyamus and poppy heads. Red vessels still very large and numerous, especially at the upper part of the eyeball.

June 13.—The redness of the adnata has very much diminished; the pupillar edge of the iris is more irregular and more serrated, and the pupil smaller. The opaque substance is now advanced close to the iris, and the latter is projected nearly into contact with the cornea; intolerance of light continues, but has been free from pain for several weeks; general health continues unaffected.

July 3.—Within these last four days, considerable febrile symptoms have come on. The eye is very much inflamed, and intolerant of light, with considerable pain in the eye and frontal margin of the orbit, shooting occasionally to the posterior part of the head. For three days has had an attack of severe pain, which has usually continued for about an hour. Profuse watering of the eye. Pulse full and strong, but not quick.

In consultation with Mr Gillespie, it was agreed that the removal of the eyeball was now expedient; but, with the view of lowering his system, two cupfuls of blood were directed to be taken from his arm on the 4th. On the 5th he had a dose of salts; on the 6th, six or eight leeches were applied to the forehead and temples; and on the 8th, the salts were to be repeated in a full dose.

9th July.—The inflammatory symptoms having greatly subsided, and the disease in the internal part of the eye being still on the increase, the iris being now in close contact with the cornea, and the pupil completely closed by the opaque matter, it was resolved to extirpate the eyeball; and the operation was performed in the following manner.

The temporal angle of the eyelids was divided with a scalpel, which was then passed round, first at the frontal aspect of the eyeball, from the external to the internal angle, and the muscular and other attachments divided; the lower segment was divided in a similar manner; and the fore-finger of the left hand being passed from the nasal angle backwards, the optic nerve was found to form the only remaining connexion; it was readily divided with the same scalpel, and the whole removed from the orbit. The lacrymal gland was dissected out; the vessels were allowed to bleed for a few minutes. The divided eyelid was then brought together by a single small ligature; and the clotted blood being removed, two small strips of dry caddis were pushed gently into the orbit between the eyelids. Over this a pledgit of simple ointment, secured by a compress of caddis, and a few turns of a double-headed roller passed round the head. The little patient was put to bed. He bore the operation uncommonly well. It occupied only four minutes.

After being in bed for about an hour, a slight dropping of blood was observed; but as he had fallen asleep, it was not thought necessary to remove the dressings, and it did not increase.

11th.—Slept well both last night and the preceding; complains merely of the stiffness of the dressings. Pulse natural; a great part of the dressings removed—low diet.

13th.—Complained of slight pain of the orbit this morning, of very short duration; dressings entirely removed; suppuration begun; parts look well; became very faint during the dressing, apparently from fear and change of posture, it being necessary to take him out of bed for the convenience of a proper light.

15th.—Dressings changed daily; discharge very moderate; not the smallest derangement of functions, and no complaint, except of hunger.

17th.—Has been out of bed all day, and walking about the drawing-room; discharge healthy; allowed more nourishing diet.

21st.—I found the patient so well, that I did not find it necessary to visit him again; and I heard no more of him till the beginning of March of the present year, when he called to show me a small tumour which had been observed in the orbit. On examination, I was happy to find that it was merely a granulathen projecting a little, with a narrow neck; on lifting it up with the point of a probe, it bled a little; and the little fellow, being evidently much alarmed, dropped off the chair in a state of syncope. I was unwilling, on this account, to do any thing more, but requested him to return in a day or two, intending to cut off the projection with the curved scissors, or put a thread round it, as might appear most advisable. However, on the following day, his father wrote to me, "that the bit of flesh had been so disengaged by you yesterday, that it came out when his mother was washing the eye. The place is a little red, but he complains of no uneasiness."

Being anxious to ascertain whether this cure continued permanent, I wrote to Mr L. in July, and received the following very satisfactory answer:—"I am happy to say, that, since you last saw my son, the eye has appeared to be quite healthy and well. He has not, upon any occasion, complained of the slightest uneasiness in it, or of any affection of the head; and his general health has been perfectly good. It is consoling to think, that the consequences of the operation have hitherto been, and I now sincerely hope will continue to be, so favourable and satisfactory to all concerned."

It may appear to some surgeons, that I have been unnecessarily minute in giving the details of this case; but the subject is one of so much importance as to warrant a greater degree of accuracy than in diseases of more ordinary occurrence. It is the only case of fungus hæmatodes of the eyeball that I have met with, in which the operation has been attended with success, as I trust I may flatter myself that there is no probability of return, so long a period as nearly eighteen months having elapsed since the operation was performed. In all the cases detailed in Mr Wardrop's work, the result of the operation was unfavourable, except in one doubtful case. But he records only one instance where the operation had been performed at a very early period of the disease, and none where the optic nerve was found in a healthy state. Although the operation, therefore, holds out little prospect of ultimate cure, if the disease is at all advanced, I was encouraged to try it in the present case, from being assured that the disease was in an early stage, being only of about four months standing when it was performed; and, though only a solitary instance of complete success, it ought to impress on the mind of every surgeon the necessity of attending minutely to the symptoms of the disease, and the importance of operating at an early period. In this case, and in another of a child of two years old, I observed some puriform curdly matter floating at the lower part of the anterior chamber,—a circumstance that I am not aware has been noticed by any other writer on this subject.

*Dissection of the Eyeball.*—The eyeball was divided from the optic nerve to the apex of the cornea. The appearances presented were precisely the same as those so accurately delineated by Mr Wardrop * in the engraving of the drawing sent him by Sir Astley Cooper, and subsequently copied by Professor Scarpa † into the last edition of his work on the Diseases of the Eye. The origin of the disease in the retina was finely and satisfactorily illustrated. The optic nerve was quite healthy. The sclerotic and choroid coats were of natural texture. The cornea was a little softer than natural, and not perfectly transparent. The lens was pushed into contact with it, and seemed smaller than natural, and flattened. The diseased mass, into which the retina had been converted, connected only to the optic nerve, floated loosely in various folds, occupying both chambers of the eye. The eyeball did not appear to be at all enarged.

*York Place, Edinburgh, November* 1822.

## VIII.

### *Rotation Saw, newly invented by Professor* Thal *of Copenhagen.* Communicated by Frederic Howitz, Professor of Medicine in the University of Copenhagen, and Secretary of the Royal Medical Society. (*With an Engraving.*)

The accompanying instrument, called a *Rotation-Saw*, has been invented this year by Professor *Thal*, first surgeon to the Copenhagen Hospital for the Poor (*Almindelig Hospital*). In its present form, the whole instrument has also been executed by the inventor, who is almost as skilful in such workmanship, as his countrymen acknowledge him to be in the principal object of his studies.

As the instrument is eminently well fitted for making deep and short cuts in bones, it seems to be particularly useful in dividing the intervals between the circular cuts of the trephine, in several instances of caries, in cutting the ossa metacarpi, and it may even be used as an instrument of anatomy, if executed on a larger scale. Different saw-blades, either quite circular, or sections of circles, may be screwed on, according to circumstances, and, by a little practice, every surgeon will soon acquire the necessary dexterity in using it.

The further details of its construction and application are exposed in the following Report, which is a translation of that read by the author to the Royal Medical Society of Copenhagen.

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* Observations on the Fungus Hæmatodes, p. 193.

† Malattie degli Occhi, Ediz. quinta, Tav. 1. fig. 2.

"To make a short, deep, straight incision with a saw in a large flat bone, by the instruments at present in use, or with which I am acquainted, if not impossible, is at least a very difficult task. One which, in my judgment, is more suitable for this purpose, is constructed in the following manner:

1. A piece of thick watch-spring steel is formed into a circular plate or segment of a circle; its edge is furnished with coarser or finer teeth, which resemble in figure an isosceles triangle, with the angle at the apex equal to 60 degrees.

2. The saw is fixed at right angles in the middle point (centre), from its cutting edge, to a steel rod of indefinite length, the opposite end of which has a handle like that of the trephine.

3. Near the saw, the steel rod passes through a metallic cylinder or box, which is fixed in a flat wooden handle perpendicular to the steel rod.

4. According to circumstances, there are several saw-blades, commonly circular plates or segments, the teeth of which are fewer or more numerous,—larger or smaller.

The manner in which I myself use this instrument, which may be named a rotation-saw, is as follows: I allow the handle of the brass box to rest on the fore-finger of the left hand, and with the thumb and other fingers I hold it steady, while I fix the saw on the bone which is to be divided, and make rotation with the right, either with the whole hand, when this is practicable, or with the thumb, fore and middle finger, where there is not room for the whole hand. Each saw, therefore, may also be screwed on, parallel or perpendicular to the direction of the rotation-handle.

The expedition with which this instrument, after a little practice, works, cannot be accurately determined. I cut through, in the presence of the Secretary of our Society and others, on a subject having middle sized bones,

| | |
|---|---|
| A cranium 2½ lines thick, in - - | 15 sec. |
| The ulna transversely near the carpus, in - | 15 sec. |
| The metacarpal bone of the middle finger, in - | 18 sec. |
| The ulna longitudinally near the carpus, - | 15 sec. |

In nearly the same time I have cut through a clavicle and a rib, by this instrument, which may be used even on a hollow flat bone." (In the model which we have received, the cylinder through which the steel rod passes is of brass. We have tried the saw; and, though not so dexterous in its use as Professor Thal, we have found it work well; and that, to use it with effect, the fixed handle must be kept very steady, and the rotation-handle moved lightly.—*Editor.*)

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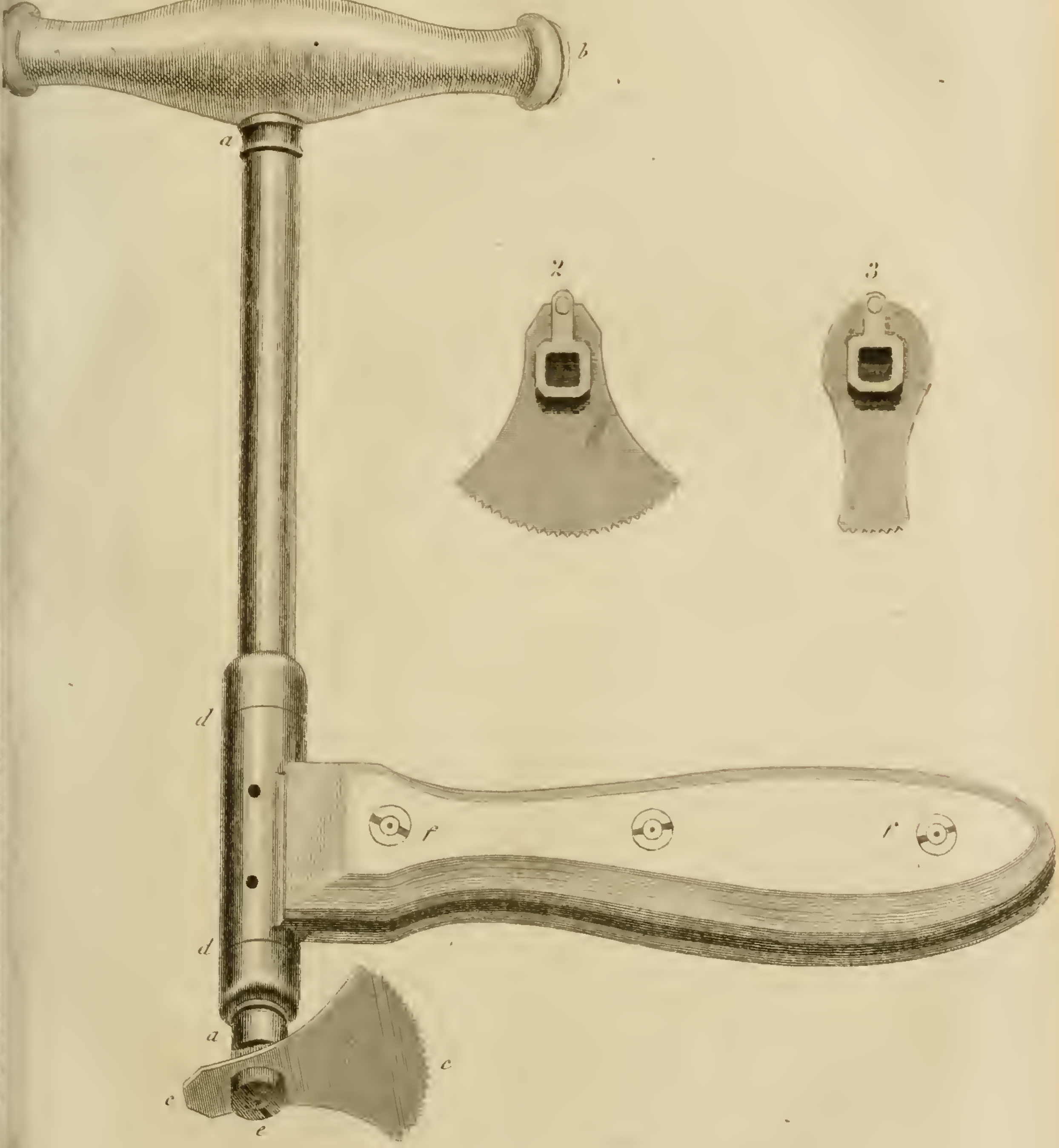
Fig. 1.



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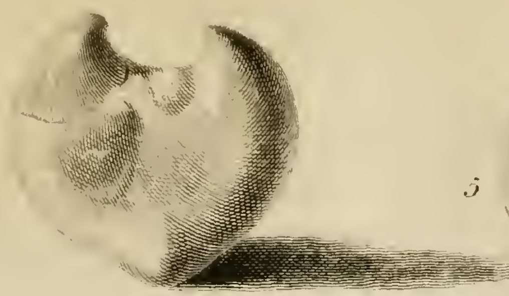

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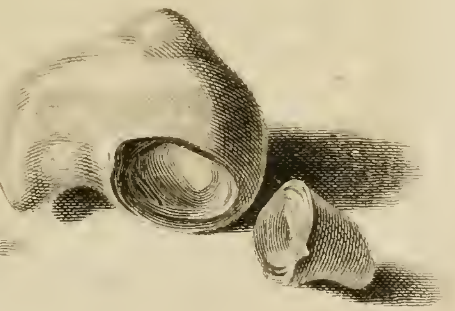

E. Mitchell Sculp.t

### *Explanation of the Engraving.*

Fig. 1. A representation of the complete instrument of Professor Thal, called Rotation-saw, ready for use.

*a a*, The steel rod in which the rotation-saw is fixed.

*b b*, The rotation-handle of the steel rod which the operator is to take in the thumb and finger of the right hand.

*c c*, The saw fixed on the other extremity of the steel rod, so as to perform a short circular motion.

*d d*, The brass box or cylinder through which the steel rod passes, and in which it moves, attached to a suitable fixed handle *(f f)*, which is held in the left hand of the operator.

*e*, A small screw rivet or nut, which may be removed and replaced as the saw requires to be changed. For this purpose, a small key is made to accompany the apparatus.

Fig. 2 & 3. Detached saws of different size and construction.

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## IX.

## *Account of a Calculus in the Urethra, formed upon a Brass Ring.* (*With an Engraving.*) By Robert Liston, Surgeon.

About two years ago, I was applied to by an old gentleman, on account of difficulty in making water; but, as he at that time declined allowing any examination of the parts concerned, I discontinued my attendance.

A few months afterwards, I was again sent for on account of the same complaints; and the following curious particulars of the case were communicated:—

The patient, forty-seven years previous to his application to me, and then about the age of nine or ten, had incontinence of urine to a certain degree, and was frequently chastised by his parents on account of this occurrence during the night.

In order to save himself from a flogging, he one evening, before going to bed, passed a brass curtain ring over the penis, as far as he could. This expedient had the desired effect; but in the morning, swelling had come on to so frightful a degree as to prevent his removing it. Notwithstanding all his suffering from pain and difficulty in passing his urine, he made no complaint. The skin under the ring gradually ulcerated; and as the ring sunk into the substance of the penis, the swelling subsided. The integuments met and adhered over the foreign body, and there it remained. After the first disagreeable effects subsided, no more trouble was occasioned. The yard performed all that was required of it. The urine passed easily; and, after a while, he became the father of a fine family. For some years previous to his first application to me, difficulty in making water had been coming on; and more especially in the night, frequent desire to pass it rendered him very uncomfortable. By his own account, he was under the necessity of keeping a vessel constantly in bed, and was generally disturbed every half hour. His health had from this cause begun to suffer. In other respects, the organ, he said, had become quite unserviceable. On these accounts, he was anxious to have the *ring* removed.

On examination, a broad hard substance could be felt, surrounding the penis, close to the symphysis. At the patient's urgent desire, an incision was made upon the lower part of the penis. Immediately on the knife touching the foreign body, the state of the case became evident. The incision was enlarged with a sharp-pointed bistoury, and the calculus represented in the accompanying drawing easily extracted. The uneasy symptoms immediately disappeared. The patient was obliged to make water only twice during the night. But for his obstinate refusal to allow the use of the bougie during the cure, the wound would have healed without trouble, as it was a small opening continued, which, however, was much diminished by paring the edges, and bringing them together. A minute fistula still remained.

The only theory of the disappearance of the ring and formation of the stone that can reasonably be offered, in my opinion is this, that a portion of the brass ring having speedily made its way into the urethra, had been acted upon, and washed away by the urine. The remainder, coming more gradually in contact with that fluid, had become encrusted, and the metal incorporated with the uric acid, and of which the stone appears to be composed. If any confirmation of the preceding account of the origin of the disease were necessary, the figure of the stone affords it readily. The patient has since died of pulmonary disease, otherwise the above account might not as yet have been made public.

Fig. 4 & 5. of the engraving give different views of this calculus.

*56, George Street, Edinburgh, September 25th,* 1822.

*P. S.* Since the above account was drawn up, a section has been made of the calculus, and two thirds of the ring found in its centre.—R. L.

# X.

## *Case of Sarcocele (Scirrhous Degeneration of the Testicle), treated by Operation.* By R. L. Drapes, M. D. and Member of the Royal College of Surgeons, London.

On the 25th of July 1818, Mr —— W —— came to me from Carnew, in the county Wicklow, to consult me on what he supposed to be a rupture. He was 45 years of age, fair complexion, light hair, blue eyes, below the middle stature; had been, about two years before this, in his Majesty's navy, but since engaged in farming, and much given to dissipation. The account which I received from him was, that, a short time previous to his quitting the navy, he had received a blow from a piece of timber on the pubal region and scrotum. From that time the right testicle began to enlarge, and occasionally gave him much uneasiness. That for about twelve months the size had remained stationary, but within the last two had again began to increase; and that, three weeks previous to his applying to me, a pustule had appeared on its anterior part, which, bursting in a day or two, was converted into an ulcer, which rapidly increased till the present time. He concluded by saying, he was informed that the disease was a rupture.

On examination, the appearance which the diseased part presented was really shocking; and it required but very little discernment to ascertain that the complaint was not hernia. The right testis was so much enlarged as to fill completely both my hands when applied round it. Its anterior part, to the extent of a crown piece, was bared of integuments; and a large fungus, hard, black, and dry, protruded, at least to the elevation of half an inch, filling up the opening in the integuments, which had apparently been produced by erosion. A thin, ill-conditioned, offensive matter oozed from under the skin, which had an erysipelatous appearance, round the circumference of the fungus. The whole testis felt hard and incompressible, and there was an utter impossibility of distinguishing the epididymis. He was of a pale leaden colour, considerably emaciated; was annoyed with darting pains, shooting from the disease and groins to the back; had nocturnal perspirations; appetite and digestion bad; pulse 100; respiration 30, and somewhat difficult, with troublesome short cough; heat variable; bowels inclined to costiveness; urine scanty and high-coloured. From the urgency of the symptoms, I had but little doubt that castration was the only remedy which would afford a chance for the preservation of his life. Previous to so serious an operation, however, and which I conceive should never be performed except in a case of the most urgent necessity, I was willing to try what could be effected by medicine. I therefore ordered the following pills; submuriatis hydrargyri grana octo; extracti conii maculati grana sexdecim; saponis quantum sufficiat, commiscenda et in pilulas octo distribuenda; una mane nocteque sumenda. Also the application of an ointment composed of equal parts of mercurial and simple ointment to the part affected, night and morning. The symptoms, however, increased so rapidly, that, after four days, I did not think it would be safe to defer the operation longer. His appetite at this time was totally gone; pulse increased to 120; respiration 36, and difficult; excretions, except that of perspiration, diminished; and, in fine, hectic symptoms prevalent to an alarming degree. The fungus, if I might so call it, had increased considerably; and the whole testis was harder and more enlarged. The spermatic process appeared free from disease, except the lower part, where it is united to the epididymis, which was not to be distinguished from the testis. He was particularly anxious himself to undergo the operation, which I accordingly performed on the 31st of July 1818.

Having placed him sitting on a table with the legs separated and depending, I commenced by making an incision down to the spermatic chord, between the external ring and the scrotum, with an intention of separating the spermatic artery from the vas deferens, to secure it singly. I then continued the incision through the integuments, in a circular direction through the scrotum, about half an inch from the fungus all round, to avoid leaving any diseased skin. On endeavouring to separate the artery from the chord, he struggled so much in spite of the attendants during the operation, that the artery was wounded; and I found it impossible to tie it separately, without being guilty of unwarrantable delay. I therefore surrounded the spermatic process with a ligature at its upper part, and continued the operation by dissecting out the testis, together with the greater part of the tunica vaginalis, to which it firmly adhered. I found it necessary to secure three other arteries, which were very much enlarged, and had entered the diseased mass, where it adhered to the vaginal coat. The wound was brought together, and united by one stitch and adhesive plaster. He felt quite easy after the operation; was immediately removed to bed; and at night got an anodyne.

On my visiting him next morning (August 1st), he complained of violent pain shooting from the groin up to the lumbar region; his breathing was somewhat hurried; pulse 100; heat natural; and no evacuation since the operation. I took twenty ounces of blood from his arm, and gave him a draught containing olei Ricini ℥i. aquæ menthæ pip. ℥ij.

2 o'clock, same day.—Draught operated twice; pain not so great.

8 o'clock *p. m.*—Pain continues.

Emittatur sanguis ad ℥xvi.

August 2d.—Pain considerably abated.

Repetatur haustus aperiens.

Evening.—Draught operated three or four times. He is perfectly free from pain or uneasiness.

August 3d.—Continues easy.

From this till the 5th, when the dressings were removed, he remained free from any unpleasant symptoms. I found that the wound had not united by the first intention, suppuration having taken place. I therefore dressed it with a little simple ointment.

7th.—Considerable discharge of matter, with appearance of sloughing of the part of the *tunica vaginalis*, which had been allowed to remain.

Admoveatur cataplasma emolliens.

The poultices were continued till the 9th, when the entire tunic sloughed. The last of the ligatures came away on the 10th; and, by simple dressing, and attending to the state of the bowels, the wound was perfectly healed, and the patient able to return home on the 17th.

On examining the diseased mass after its removal, I felt myself fully justified in having undertaken the operation. Making an incision into the posterior part of the tumour, I could not detect the smallest traces of its original organization. The epididymis, vasa efferentia, and testis, were all confounded together in one solid morbid structure, and totally undistinguishable from each other. In appearance, I might say, it bore some resemblance to indurated brain; but in texture it was totally different, being so hard and firm, that it required considerable force to cut into it with a sharp scalpel. These appearances satisfied me, that, even had not the urgency of the symptoms rendered the operation indispensable, the leaving of such a diseased mass would be not only useless, but burdensome to the patient.

Although I believe the Essay of Mr Pott is one of the best written on the subject, yet I must confess that I could not be easily induced to follow his directions, by extirpating a sarcocele which was mild in its nature, and not attended with pain, or any other disagreeable symptom; having met with some cases which had continued for years without becoming malignant, and were not attended with any other inconvenience, than that arising from their bulk.

With respect to my method of performing the operation, I am aware, that, by including the vas deferens in the ligature, I have exposed myself to the censure of many. It will be recollected, however, that I stated it was my intention at first to have tied the artery separately, but circumstances obliged me to tie the entire chord, a method which is not without its advocates. Indeed, when we consider the high professional eminence which the partisans for each plan of operating hold, we are inclined to hesitate in deciding which is best. Petit, Desault, Mr Samuel Cooper, and other practitioners of rank, strongly condemn the inclusion of the vas deferens, and affirm, that the most dangerous symptoms have occurred from it; while, on the other hand, the names of Mursinna, Richter, and Pearson, seem sufficient to sanction the practice. In the present case, the pains which the patient felt after the operation appeared to me to be caused by the ligature, and were completely removed by bleeding, which, I apprehend, could scarcely have been so successful, without a removal of the ligature, if my suspicion was well-founded. Be this as it may, although I should again endeavour to tie the artery separately, should another case occur to me, yet the present is certainly an additional one in favour of those who recommend the opposite practice.

With respect to the opinion of those who advise that no ligature at all should be applied, I apprehend, that, although it may sometimes be omitted with impunity on young subjects who are free from disease, as we know has been done with Italian children, and those of some Eastern nations, as also with the young of inferior animals, yet the argument will by no means hold good with respect to adults, in whom the vessels have been considerably enlarged by the presence of disease.

Suppuration and sloughing having taken place in this instance, as well as in every other in which I have seen the operation performed, notwithstanding the endeavour to heal by the first intention, may, in some measure, account to us for the advice of M. Larrey not to unite the edges of the wound, "parce qu'ils doivent suppurer, et que la suppuration est nécessaire!"

It was astonishing, notwithstanding the extreme state of emaciation to which the patient was reduced previous to the operation, with what rapidity he got into flesh afterwards. This is a circumstance which has been remarked by others in similar instances. It is now upwards of three years since my patient was cured, during which time he has enjoyed uninterrupted health; and by the last account, received a few days ago, he says he is still blessed with a continuance of it.

*New-Ross, May 22d,* 1822.

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## XI.

## *On the Pathological Anatomy of the Human Brain and its Membranes.* By DAVID CRAIGIE, M. D., Lecturer on Anatomy and on Physiology, Edinburgh.

(Continued from Vol. XVIII. p. 509.)

Having given this view of the first part of my subject, I have now to make a few very brief remarks on the second general division; the connexion subsisting between morbid states of the brain, and morbid states of other parts of the body. It might be possible to extend these to a considerable length, but I have every reason to be somewhat select on this subject; and I shall restrict myself either very nearly or wholly to what I have derived from personal examination and observation.

The account which I have already submitted, of the morbid changes to which the different parts of the brain are subject, will readily suggest the very great influence of the blood-vessels in accomplishing these changes. It is, in short, exceedingly interesting to observe, that the sanguiferous system is a very powerful agent in effecting many events which take place in the nervous system. When I make these remarks, I trust that I shall not be misunderstood, nor be thought to favour the notion of any vague or mysterious connexion subsisting between these two component parts of the animal body. It is the practice of many to explain all changes in the animal body by the operation of a single set of organs. Some, for example, erect their altars to the vital principle; a great many to the sanguiferous system; and not a few consider the brain and nerves as the universal agents of good and evil. But he who attempts to explain all things by these isolated means, only demonstrates the impossibility of explaining any; and the accommodating and convenient application of which each admits to every possible case, shows satisfactorily that they cannot all be in the right. It is too much for any individual to expect that he will be entirely exempt from the general sources of fallacy and error to which all seem to be liable; and a gradual approximation to the true and natural representation of causes and effects, and of the connexion of events, whether simultaneous or successive, is all that the most sagacious observation and most penetrating intellect may hope to attain. To some these remarks may seem very unequal to the real importance of the subject; but I have some reason to believe, that the observations with which this Essay is to conclude may be new to some, and therefore unexpected; unnoticed by authority, and therefore unwarranted; and I have thought it not unnecessary to anticipate any misconception to which they might give rise. I shall not attempt to show, that most of the affections to which the brain is liable depend on a peculiar condition of the heart and great vessels; but my present purpose is, to make some remarks on the connexion between morbid states of the heart and great vessels, and morbid states of the brain and its membranes.

It is very well known, that, when the heart is diseased, it never fails to derange the functions of many other organs, and to induce effects which had been long mistaken for primary diseases, till more accurate and intimate knowledge of the maladies of the circulation, showed that they were mere secondary results. Many disorders to which the organs of respiration are liable, were habitually ascribed by practitioners to affections of the lungs and their appendages, till it was found that a very great proportion indeed of these was actually induced by morbid changes which had taken place in the heart, and the parts immediately connected with it. It does not appear, however, that any pathologist has particularly examined those effects to which the diseases of circulation give rise in the cerebral organ; yet it cannot be doubted, that a very real and great influence is exercised by the former on the latter. M. Corvisart, who has observed with such accuracy, and described with such clearness the diseases of the heart, scarcely hints at the subject, and dismisses it in a single brief and rapid section; and yet he had before his eyes a very striking example in the person of a distinguished member of the profession. * I cannot account for this singular oversight, as I deem it, in any other way, than by reminding my readers how very natural it is to overlook, in pathological autopsy, any changes which may have taken place in different organs, when one presents enough, as it has been said, to account for the symptoms. A man, for example, falls down in a fit of apoplexy; he is carried home, and treated in the usual manner; he perhaps recovers, to fall a speedy victim

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* Malpighi.

again to his disease; perhaps he dies, and his head is inspected. The physician finds blood or serum extravasated, and concludes his examination, perfectly satisfied with the result. He naturally does not think of carrying his autopsy into other organs, when the symptoms are accounted for according to the usual doctrines; and he never thinks of tracing the chain of morbid events any further.

About five years ago, my attention was forcibly called to this subject by a case, the particulars of which I shall detail very briefly. I then thought it might be an exception to the general character of cerebral diseases, and I consequently endeavoured, by all means, to ascertain whether it were really so or not. I have since had occasion to examine a very considerable number of cases, and have found that the connexion between the two events, of disease of the heart and disease of the brain, is a great deal more common than I anticipated; and I have known cases which were examined by professional friends, in which the same connexion existed, though it did not occasion particular remark. It would very much exceed the limits within which I must restrict this paper, were I to detail all these cases; and it would certainly be mistaking, in a great degree, the object which the author of a paper of this nature ought to have in view. I shall therefore notice only three examples of the fact; and, as these were very characteristic, they will illustrate and confirm the opinion I have advanced quite as forcibly as if I had described as many hundreds.

1. P. E., aged 22, was attacked, rather in a gradual and insensible manner, with constrained and difficult breathing, and a sense of fullness, tightness, and anxiety in the chest. These symptoms did not attract particular attention, until he observed his feet becoming œdematous, his urine scanty and high-coloured, and, above all, his sleep interrupted with frightful dreams, attended with violent palpitation. These complaints at length compelled him to take medical advice; and the physician whom he consulted, justly ascribing the symptoms to hydrothoracic effusion, began, however, very soon to perceive, from the irregularity of the pulse, the violent and unequal action of the heart, and the progressive course of the symptoms, which presented neither alleviation nor interruption, nor seemed to be connected with any state of the gastric viscera, that some disorganizing process had commenced, and was going on in the central organ of circulation. Notwithstanding the diligent employment of such means as were calculated to remove the effused fluid, and control the action of the heart, the disease advanced progressively; and one day, after feeling an extraordinary degree of giddiness, with some tinnitus aurium, he staggered towards his bed, and fell down in a state of hemiplegic paralysis. Leeches and a blister were applied to the head,

purgatives were administered, and the feet were irritated with sinapisms, but his recovery was merely partial; the slowness and irregularity of the pulse, which was generally about 42, and almost never exceeded 54, continued; the sense of suffocation was not remarkably urgent; but this patient died, with symptoms denoting at once syncope and paralysis, exactly three weeks after the attack of hemiplegia.

A notable quantity of fluid was found between the arachnoid membrane and the pia mater, especially in the vicinity of the venous trunks. About three tea-spoonfuls were found in the ventricles. Both the convoluted and the central surface were, in other respects, sound; but in the region of the striated body of the right hemisphere, a recently formed cavity was found in the cerebral substance. This disorganized space was about one and a half or two inches long, and one inch broad; its surface was rough, irregular, and hard; its colour was rather redder than natural. In the heart, the left auriculo-ventricular opening was very much contracted, and, instead of the mitral valve, with which this opening is surrounded, there could be found only a uniform ring of bone, very irregular in appearance, and various in consistence, but which had been evidently produced by the thickening, enlargement, and disorganization of the valve.

2.—A. B., aged about sixty, was found by the police, in the vicinity of the Leith Docks, in a state of insensibility and loss of voluntary motion, which were supposed to arise from external injury or intoxication. When, however, his head was shaved, it exhibited no marks of violence; and though his general aspect was that of a person addicted to habitual ebriety, yet his breath did not exhale the strong and well-marked odour occasioned by recent drinking. He was accordingly blooded very largely; cold was applied to the head; and the bowels were evacuated by means of enemata. In the course of a few hours he became more sensible, moved his limbs, and uttered, in his attempts to speak, inarticulate mutterings. The venesection was repeated; and the other treatment, calculated to obviate the effects of cerebral congestion, was continued. It was evident, however, that he was paralytic in most of the voluntary muscles. Speech was entirely lost; the extremities were moved only imperfectly; the urine was educted by the catheter; and, when he had continued in this condition for about thirty hours after he was first seen, he passed from complete and uninterrupted coma to the state of general death.

The whole convoluted surface of the right hemisphere was occupied by bloody effusion; the cerebral substance corresponding to it was broken down and disorganized; the folia of the cerebellum were covered, and their interstices filled with blood; and the moriform body of the right side was considerably affected. The annular protuberance was more completely the seat of extravasation than any other part. Its inferior surface was quite covered; and when its substance was exposed by incision, blood was found regularly deposited between the transverse fibres of which it is composed. I found the whole aorta, from its origin at the left ventricle, to about two inches below the arch, completely ossified; the semilunar valves thickened and ossified; and the aortic opening much contracted.

3. I lately had occasion to examine the body of a patient who died under circumstances which rendered it impracticable to ascertain any thing concerning her symptoms during life. A woman, aged about 50, had been found in a state of insensibility, which was supposed to arise from inanition. She died so soon after being seen by the medical attendant, that the remedies ordered had not time to operate.

The arachnoid membrane was elevated by a watery fluid deposited between it and the pia mater; the veins of the latter were exceedingly distended with blood; and the whole superior convoluted surface of the hemispheres was occupied with the same fluid. The ventricles contained about 1½ oz. of watery fluid; the choroid plexus presented several globular hydatiform bodies; and the capacity of all the cavities was much enlarged. Several particles of osseous matter were found along the arch of the aorta; the semilunar valves were thicker and firmer than natural; the left auriculo-ventricular opening was very much narrowed; and the mitral valve was ossified very nearly half way round. The stomach and intestines were filled with fluid, but very little solid aliment was found.

To these I might add a fourth very well marked case, related by Dr Heberden in the 5th volume of the Transactions of the London College of Physicians. It is there considered as a case of water in the head, unattended by the usual symptoms; that is, that no very obvious phenomena during life indicated any effusion into the cerebral cavities; yet this, with the hydatiform state of the plexus, was found in considerable quantity after death. But the characteristic circumstance to which I wish to direct the attention of my readers is, that the heart was the seat of considerable organic disease. "The valves of the left auriculo-ventricular opening were partially ossified; those of the aorta completely so; and small depositions of bony matter were found on the tendinous portions of the columnæ carneæ. The coronary artery was ossified through its whole extent; the aorta, soon after emerging from the ventricle, formed a true aneurismal pouch." No one, I think, who studies the case of Dr Heberden, in reference to those which I have related, will venture to assert that it was a true case of hydrocephalus, or that the effusion was not the effect of the disordered state of the circulation. It would be exceedingly easy to multiply examples of this coincidence of morbid structure and action; and I might adduce the instance of Malpighi, who was himself the subject of this twofold disease; but instead of fatiguing the attention by tedious details, I shall conclude with the following remarks.

1*st*, It is quite obvious, that several maladies of the heart, such as ossification of the left side, or of the artery connected with it; ossification of the mitral valve; of the semilunar valves; arctation of the apertures, either auriculo-ventricular, or aortic, have a tendency to terminate in extravasation within the cranium, producing apoplexy, paralysis, or a comatose state terminating in death.

2*d*, It is equally obvious, that although examples of disease of the head, affection of the brain and its membranes, occur spontaneously, yet not a few are the result of a disturbed or irregular state of the circulation, induced by disease of the heart or its appendages. This connexion has not been examined so often as it merited; and there is strong reason to believe, that, if made the subject of particular investigation, it would be proved to be much more constant and uniform than has been anticipated.

3*d*, It is by no means difficult to see how these effects in the cerebral organ result from an irregular and disordered action of the heart. The difficulty which the blood experiences in passing either, 1*st*, through the auriculo-ventricular opening; 2*d*, the aortic orifice; 3*d*, along the aorta, necessarily produces a stagnation and congestion; 1*st*, in the pulmonary veins; 2*d*, in the pulmonary artery; 3*d*, in the right side of the heart. The effect of this is to retard or impede very remarkably the return of the blood from the cerebral veins, and consecutively either to distend them, or, unless they are exceedingly strong and resisting, to rupture them, or to occasion an effusion of the serous part of the blood, as we find in other examples of obstructed venous circulation.

Some authors have noticed the connexion between morbid conditions of the brain, and morbid conditions of the liver. My personal opportunities do not enable me to add any thing to what is already on record; and it is unnecessary to transcribe here what may be found elsewhere.

*Edinburgh, December* 1820.

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## XII.

### *Case of Enlarged Heart, the consequence of Ossification of the Mitral Valves.* By John Kesson, Surgeon, Haddington.

George Dobie, aged 38, a strong muscular man, for many years employed as a distiller, and subject latterly to daily intemperance and intoxication, came to me in August 1821, complaining of want of appetite, pain, and a great feeling of oppression at his stomach, with slight palpitation or "fluttering" at the breast. His pulse was frequent, small, but regular; countenance anxious and pale; lips of a livid colour; respiration somewhat hurried; tongue foul, and a bad taste in the mouth; belly, by account, regular.

The *epigastrium*, on examination, was found full, tense, and hard. Deeming the case as one of disordered stomach, an emetic of ipecacuan was prescribed, which relieved the oppression somewhat. The palpitation, however, which was at first thought to be symptomatic only, gradually became more and more evident; and, in the course of a month, notwithstanding the blood-letting and exhibition of a great many stomachic remedies that were *effectually* used for the removal of the dyspeptic symptoms, the pulse became so visibly affected, that the whole disease was referable to some organic affection of the heart, or its connecting vessels.

Subsequently, he had repeated attacks of very violent and distressing paroxysms of dyspnœa and palpitation, accompanied with severe pain of breast, aggravated by fits of coughing and retching, so as to make him cry out: he had also occasional vertigo, with intense headach, and profuse perspiration. These symptoms were sometimes mitigated by general blood-letting, at other times only by a large opiate, or repeated doses of digitalis; and when thus mitigated, he was often enabled to walk about for several days, sometimes even for weeks, in a comparatively easy state; but always experienced great difficulty in ascending a flight of steps, or a rising piece of ground.

Appetite, during these intervals, generally very good, sometimes even voracious.

The above mentioned symptoms continued to recur more and more frequently, and to increase in violence; the irregularity and intermission of a now uncommonly full and strong pulse became also very great, having long intermissions of four, five, and six beats in the minute.

He could not, at length, lie in the horizontal posture, but generally passed his nights in an armed chair, or in bed, supported by pillows in a sitting position. He slept little, and generally awoke in a start, unrefreshed; described the pain as being very acute and shooting, from one particular part in the left hypochondriac region, throughout his whole chest. On placing the hand over the *præcordia*, the heart, which beat audibly, was distinctly felt, beating as low down as the umbilicus.

In consequence of these repeated attacks, notwithstanding his voracious appetite, which had become still more keen, he became, in time, much emaciated. His limbs became anasarcous; and scanty secretion of urine, with other dropsical symptoms, took place, which, however, were frequently overcome by digitalis and the blue pill, given so as slightly to affect the mouth.

At last complete suppression of urine came on; decided symptoms of hydrothorax presented themselves, with more or less *hæmoptoe;* and, after three or four weeks of the most painful suffering imaginable, he was suddenly cut off, immediately after eating a large basinful of strong soup, on the afternoon of Saturday the 14th September current.

Twenty hours after death, when the body was examined, it exhibited, externally, nothing unnatural in its appearance, except that the lower extremities were very œdematous.

On laying open the thorax, four pounds of effused fluid (serum tinged with blood) were found in the left cavity; one pound and a half in the right; and six ounces within the cavity of the pericardium—making in all six pounds.

The left cavity was almost wholly occupied by the pericardium, enclosing a heart enormously enlarged, weighing not less than three pounds two ounces, Dutch weight.

The lungs on the left side were very much reduced in size, indurated, and adhered very firmly all over to the *pleura costalis.* Those on the right side did not collapse, were healthy, and of the natural size and colour, connected to the pleura here and there only by strong and apparently old adhesions.

In the cavity of the abdomen, fluid was found effused in considerable quantity, but not to such an extent as was expected.

The liver had undergone very considerable enlargement; but, in structure, it was quite healthy.

The spleen was smaller than natural, and was interspersed with several small semi-cartilaginous white spots.

Intestines and other viscera quite healthy.

On examining the heart detached from the body, a more than usual quantity of very firm coagula, of a whitish grey striated appearance externally, occupied all its cavities, which, with the *musculi pectinati*, fleshy columns, &c. corresponded in size with its external magnitude. On coming to the auricular opening into the left ventricle, the mitral valves were found to be firm, and extensively ossified.

The connecting vessels, viz. the pulmonary and aortic, bore also a proportionable increase of size and texture to the heart itself. The calibre of the latter of these measured in circumference exactly six inches.

In submitting the above case for insertion in the Edinburgh Medical and Surgical Journal, it is not with the presumption that, in it, there will be found any thing novel. I am not even aware that there was any thing observed which is not common to every such case.

The heart, so far as I know, was as large, if not larger, than any as yet on record. The rapidity with which the disease seems to have run its course also, is perhaps deserving of notice, as both Dobie and his wife frequently declared to me, that, previous to the month of August (1821), he had always enjoyed the most perfect health. Yet, from the extent to which ossification had arrived, it is not credible, I think, but that it must have commenced previous, and that for a considerable length of time, to his making application.

The line of practice pursued must appear very evident; and consisted merely in alleviating distressing symptoms by repeated venesections, strict antiphlogistic regimen, &c. &c.

I regret much that circumstances rendered the removal of the heart altogether impossible, and the more so, as, had it been obtained, it could not fail to have made a rare and valuable preparation.

*Haddington, 28th September*, 1822.

## XIII.

## *Some Account of the introduction of Vaccination among the Inhabitants of the Interior of Ceylon, and of an Epidemic Small-Pox which prevailed in the Kandyan Provinces in* 1819. By HENRY MARSHALL, Surgeon to the Forces.

VACCINATION was attempted to be introduced among the Kandyans in the year 1816. This measure was greatly disliked both by the chiefs and the inferior classes of the people. At that period they were unfriendly towards us from various causes, and little disposed to promote the views of Government, however much these might tend eventually to their advantage. To obviate the prejudices of the lower classes against vaccination, every means which promised to be useful was attempted; and particular care was taken to conciliate the good will of the chiefs, for the purpose of gaining their assistance to promote its dissemination. The courtly manners of the upper ranks of the Kandyans prevented them from evincing an active hostility to the measure; indeed they rarely disapprove, in an open manner, of the conduct or plans of their respective superiors. In consequence of this apparent acquiescence, we were sometimes deceived into a hope that they intended to give their assistance to extend vaccination. Experience proved that our expectations were not well founded. Kappitapole, a principal leader in the insurrection of 1817 and 1818, was the only chief of consequence who submitted to vaccination himself, and had all his children vaccinated. The people of influence were either indifferent or hostile to our endeavours in this respect.

In regard to the lower classes, many of them expressed their disapproval of the innovation in very decided terms. Still, however, some progress was made in extending the advantages of the Jennerian discovery.

The senior medical officer in the Kandyan provinces was appointed by government to superintend the extension of vaccination among the inhabitants. Under him were placed vaccinators, who were generally half-caste people, who could speak the Singhalese language. As none of the Kandyans applied to be vaccinated, or with that view came to the military stations, they were visited by the vaccinators, who perambulated the country for that purpose.

Many of the objections made to vaccination by the people appeared to be extremely frivolous and absurd. Their influence was, however, very strong. A great portion of the diseases with which mankind are occasionally afflicted, the Kandyans ascribe to the influence of malignant spirits. Small-pox are, however, supposed to have a Divine origin. This disease they believe to be caused by the goddess *Patina* (*Deyane Karia*), whose province they profess to be extremely unwilling to invade. Being anxious to court the favour of the goddess, the people speak of small-pox patients in terms of great respect. Her influence is seen in every thing which regards the prevention or prevalence, the harmlessness or comparative danger, of small-pox.

To submit to vaccination was by some considered in the light of an oath of allegiance to the English Government, and as a mark of having abandoned all attachment to the old order of things. By many, vaccination was considered as practised for the purpose of producing a permanent cicatrix on the arm, and that by this mark the officers of Government would call out individuals for personal service. Impressed with this belief, the Kandyans endeavoured, by various means, to evade the imaginary evil consequences of vaccination. For this purpose, they frequently gave a false name to the person who vaccinated them, thereby often misleading and confounding the vaccinators.

With the view of inducing the people to submit to vaccination, a petty officer of government occasionally accompanied the vaccinators. This measure was adopted partly for the purpose of protecting them from insult, and partly to show to the people that the extension of vaccination was sanctioned and promoted by Government. Through these means some of the inhabitants were occasionally prevailed upon to submit to vaccination. Long accustomed to the oppression of arbitrary control, the Kandyans often acquiesce with the expressed will of Government, without evincing much reluctance. Submission is, however, no proof that the measure has their approbation. To elude the influence of the chiefs, and to evade the imposts and orders of Government, is the habitual study of almost all classes of the Singhalese.

After having quietly submitted to the operation, it was not uncommon for individuals to take an early opportunity of bathing, seemingly for the purpose of preventing the insertion of the lymph from being effectual. At other times they were detected rubbing *chuman* (quicklime), or the juice of limes, upon the spot where the lymph had recently been inserted, no doubt with a similar intention.

The Kandyans very unwillingly permit the approach of any stranger near to their dwellings. In this, and in almost every other respect, their prejudices have always met with due consideration. However cautiously the vaccinators may conduct themselves, they are frequently exposed to much abuse from the inhabitants. It has not therefore been deemed prudent to attempt to vaccinate the people at any considerable distance from a military post. On account of the unaccommodating disposition of the inhabitants, and the dislike they have to vaccination, it is very frequently impossible for the vaccinators to obtain an opportunity of watching the issue of the insertion of the lymph. Instead of coming at regular intervals to the vaccinators for inspection, they generally endeavour to elude their search.

Other difficulties of a very important nature occur to prevent a satisfactory and secure vaccination of the people, namely, the frequency with which they disturb or destroy the vaccine vesicle, thereby occasioning an ulcerative inflammation, which is supposed to be inconsistent with the certain influence of the prophylactic. This is often done voluntarily, for the purpose, as individuals state, to relieve them from the pain and tension of the skin near to the vesicle. Perhaps, however, the vesicle is more frequently ruptured by accident during sleep. In general, the Kandyans sleep upon a coarse mat, without any personal covering, which might prevent the vesicle from injury. A habit of scratching, wherever the skin itches, is another frequent cause of the rupture of the vesicle. Perhaps this habit arises from the great liability of the Kandyans to scabies. The vaccinators have always been particularly directed to discriminate carefully between an unexceptionable vesicle, and a pustular elevation of the cuticle, the frequent consequence of abrasion, and other mechanical sources of injury.

Vaccination is therefore, in the interior of Ceylon, liable to sources of failure and uncertainty, little known in more enlightened communities. In consequence of the heat of the climate, and the inveterate aversion the inhabitants have to present themselves at fixed stations for the purpose of being vaccinated by a medical officer, and regularly seen by him during the course of the disease, the operative part of the duty must devolve upon an uneducated class of people, famed neither for intelligence nor veracity.

During the month of July 1819, small-pox appeared at Colombo. The disease was imported from the peninsula of India. Shortly after the appearance of small-pox at Colombo, the epidemic extended to the Kandyan provinces, where the disease had not been known for a period of about seventeen years. There were therefore a great proportion of the inhabitants obnoxious to small-pox. Under the native Government, a very strong measure used to be adopted to arrest the dissemination of the disease when it occurred. Every family was placed in a kind of quarantine, and all intercourse among the people interdicted, until the source of contagion had apparently become extinct.

Upon the appearance of small-pox in Kandy, an hospital was established for the reception of the inhabitants who became affected with that disease. By this means it was attempted to check the extension of the epidemic, but our views in this respect completely failed. Notwithstanding every endeavour to separate the sick from the healthy, the disease extended rapidly, the hospital became crowded, and inadequate for the accommodation of all the candidates for admission. Under these circumstances, it was necessary to confine the admissions to the more indigent and destitute of the afflicted. Indeed, a large portion of the patients latterly received into hospital were individuals whose relations had completely deserted them. Thus abandoned by every one, they were often found lying in the streets in a very advanced stage of the disease. People were appointed to convey cases of this kind to the hospital, where, although in many instances little could be done for them in regard to the exhibition of medicine, they received that attention which their condition required.

The disease, as it appeared in the Kandyan provinces, did not differ materially from the description given of small-pox by the systematic writers. Authors have in general divided small-pox into two classes, namely, distinct and confluent, which is a very arbitrary arrangement. In that degree of the disease which may be called the distinct species, the eruption was preceded by fever, which sometimes lasted for three or four days. Nausea, retching, vomiting, and a distressing sense of pain in the back, were common symptoms. Towards the second or third day of the eruption, the fever, in a number of cases, became less ardent, and the general sense of uneasiness less distressing. Many cases however occurred where the febrile symptoms abated little during the whole course of the disease. Among the many painful sensations attendant upon small-pox, none seemed to be more distressing than an ardent heat of the skin, particularly of the skin of the face. For some days the eruption was papular; it then became vesicular, each vesicle having a depressed point in the centre. During the early stage of the vesicles, they contained pure lymph; subsequently they became less pellucid, and assumed a whitish colour. When they had attained their full size, they contained a whey-coloured fluid. In no instance that came under my observation, did the contents of the vesicle assume a yellow colour and thick consistence, as is stated to occur in small-pox in Europe.

The cicatrices or pits that followed small-pox were less profound, as also less permanent, than in Europe. A pock-pitted face is very rarely seen among the Kandyans; and it may be added, that loss of sight is a very unusual occurrence from this disease.

In the confluent or severer cases of small-pox, the precursory fever was extremely ardent. Along with the symptoms which commonly accompany a distinct eruption in this disease, coma and delirium were frequently present; the face became greatly swelled; the voice hoarse, with painful deglutition; difficult respiration, particularly by the nostrils; and profuse salivation.

There were a few cases where the skin assumed a measly appearance. Under this description of the disease the surface of the body resembled wet brown or blotting paper. The fever continued without abatement; and frequently little or no eruption appeared. I am not aware that a single case of this kind recovered.

Several patients were admitted into hospital, who, by their own account, had, on a former occasion, passed through small-pox. In general, however, the relics of the disease were not so well marked as to put the matter beyond doubt. One woman was admitted on the books on account of an eruption resembling small-pox, although she had marks on her face which were deemed a satisfactory proof that she had previously passed through the disease. Presuming upon her security, she had hired herself as a nurse in the small-pox hospital. The eruption appeared after a mild fever of about two days. Many of the vesicles attained a state of maturity by the fourth or fifth day. When the eruption was on the decline, the woman was again attacked with fever, to which succeeded a second crop of vesicles. The latter eruption exactly resembled the former.

A double eruption occurred in the following two cases. On the 16th September, Kirihamy, a woman, was admitted into hospital, on account of an eruption which was denominated varicella on the return. By her own statement, she was attacked with fever on the 12th, and the eruption appeared on the 13th. The vesicles soon desquamated, and she was discharged on the 25th. She was again admitted on the 2d October, with an eruption resembling distinct small-pox. It appeared that she had been attacked with fever the day she left the hospital, and that the eruption came out on the 28th September. The eruption, although distinct, was numerous; and it did not decline before the ordinary period of small-pox.

Kiry-ettena, a female, was admitted into hospital on the 30th September, in consequence of an eruption which appeared on the 28th. The eruption was considered to answer to the descriptions given of varicella. By the fourth or fifth day the vesicles had acquired a state of maturity; and on the 5th October she was discharged. On the 13th of the same month she was again admitted on account of an eruption, which, after several days of severe fever, had appeared on the 10th; the eruption was confluent. On the 15th, comatose symptoms supervened, to which death soon succeeded.

Another class of cases with an anomalous eruption, was admitted into hospital. In all these cases, the eruption appeared after two or three days fever, which was occasionally pretty severe. The eruption came out first on the face; and, in a number of cases, it was nearly confined to the upper part of the body. In general, it was remarkably uniform, and consisted of elevated hard pimples, each of which had a vesicle at the apex that contained pure lymph. By the 4th, 5th, or 6th day, the vesicles reached their full size. Desquamation soon followed.

For some days, however, the tubercular base of the pimple remained prominent, with very frequently a slight depression on the top. After a short period, these elevations were absorbed, in a few instances leaving temporary pits. The number of pimples which appeared on the face was very various; sometimes there were not more than one or two; at other times there were as many as thirty. This class of cases had all undergone vaccination; and, from the appearance of the cicatrix, it was presumed the operation had taken effect.

In one case, an eruption exactly resembling varicella appeared during the desquamation of a numerous eruption of small-pox.

While the epidemic prevailed, a number of cases of small-pox appeared among individuals, who stated that they had submitted to the operation of vaccination, some of whom had marks resembling the cicatrices that follow a successful insertion of vaccine lymph. Unfortunately there is nothing sufficiently specific in the appearance of the cicatrix to determine with certainty that the insertion of the lymph had excited a vesicle of a satisfactory character. The uncertainty which attends a diagnosis, in this respect, is perhaps greater in the skin of blacks than in whites; and the difficulty in question is increased by the prevalence of pocky itch among the natives of Ceylon. This latter disease sometimes leaves cicatrices which cannot be distinguished from the marks that succeed successful vaccination.

With the view of obviating some of the sources of failure in vaccination, Dr Farrell, Deputy-inspector of Hospitals, and Superintendent-General of the Vaccine Establishment in Ceylon, has issued some excellent regulations. Vaccinators are now directed to furnish each individual who passes satisfactorily through vaccination with a certificate to that purpose. By fixing the responsibility upon the person who performs the operation and signs the certificate, a greater degree of care and attention on the part of the vaccinator is insured. He has likewise circulated some admirably well-suited memoranda for the guidance of vaccinators, regarding the means of communicating the vaccine disease.

*Return of the number of Native Inhabitants admitted into the Hospital in Kandy on account of Small-pox, and eruptions resembling that disease, during the prevalence of the epidemic which commenced in July* 1819.

| | Admitted | Died. | Discharged. |
|---|---|---|---|
| Under the head Variola - | 931 | 525 | 406 |
| — — Varicella - | 9 | — | 9 |

*Edinburgh*, 19*th September*, 1822.

## XIV.

## *On a peculiar Arrangement of the Venous System observed in many Animals.* By Ludovic Jacobson, Med. et Chir. Doct. and Professor, Member of the Royal Society of Sciences of Copenhagen.

Anatomical disquisitions, continued by us for a series of many years, have induced us to investigate a new and hitherto unknown system of veins, which is found in many animals. Our earlier observations we presented to the Philomathic Society of Paris, and those of a more recent date to the Royal Society of Sciences at Copenhagen. Although, for many reasons, we are at present prevented from publishing these observations, elaborated with the diligence we wish, yet we have determined to present the first lines of this venous system to the examination and judgment of the learned.

It is well known that in man, and the other mammiferous animals, all the veins, the *vena portarum* excepted, are so arranged as to form a single and continued system, which conveys the blood returning from all parts of the body to the heart. In these animals, the veins which proceed from the inferior or posterior part of the body meet in one common trunk, by which the vena cava inferior is formed, and the blood conveyed straight to the heart.

This arrangement of the venous system, however, obtains in no other vertebral animals; and a new and peculiar system of the veins exists which is not directly united with the other veins of the body. By means of the veins which compose this system, the blood which flows back from the middle or posterior part of the body does not go directly to the vena cava inferior, and afterwards to the heart, but is conveyed either to the kidneys, or to the kidneys and liver.

This system is observed in birds, reptiles, and fishes; and its primary form undergoes three degrees of modification.

The *first modification*, which is to be esteemed the prototype of the rest, exhibits the following form. From the skin and muscles of the middle part of the body branches arise, which form several trunks, passing separately to the kidneys, in the substance of which they again divide into branches, and are there variously distributed.

In the *second modification*, the veins which return from the posterior part of the body are received into this separate system, of which we are treating. The caudal vein, which brings back the blood from the skin and muscles of the posterior part of the body, divides into two branches, which, having received some veins returning from the middle part of the body, flow to the kidneys of each side, and distribute their branches in the parenchymatous substance of these glands.

In the *third modification*, the veins of this system are formed in the same manner as in the preceding, only that the caudal, or other vein returning from the posterior parts, gives off a branch to the *vena portæ*. The blood returning from the middle and posterior part of the body in the first and second modification of this system, is conveyed only to the kidneys; but, in the third, to the kidneys and liver. The inferior *vena cava* of the common venous system, in the *second* and *third* modification of this system, is composed of the veins returning from the kidneys and testicles, or ovaries. In the first modification, the caudal vein receives the veins returning from the kidneys, is united with the veins of the testicles or ovaries, and, in this manner, forms the inferior vena cava.

We shall now endeavour shortly to explain in what manner this peculiar venous system is composed in the various classes of animals.

In fishes, our venous system appears in all its modifications.

In many genera of fishes in which the venous system is presented under the first modification, all the blood of the skin and muscles which form the middle part of the body, from the head to the root of the tail, is received by venous branches. These afterwards uniting into several single trunks, run in various directions to the kidneys, as to a common centre, and are finally distributed in their parenchymatous substance.

The caudal veins meet in a common trunk between the kidneys, where, when they have received their recurrent branches, they unite with the veins of the testicles, or ovaries, and thus form the inferior vena cava.

This arrangement is indeed, as I may say, the prototype or complete form of this system of veins, since the branches of which it is composed, are for the most part present in the other modifications. The venous system thus formed, is found in several genera; for example, in the *cyprinus* (carp, tench, and barbel kind), *clupea* (herring, pilchard, and shad kind), &c. &c.

The modification, however, which is by far the most common in fishes, is the second; for in these animals all the blood of the posterior, and very often of the middle part of the body, flows to the kidneys. The caudal vein, when it reaches the kidneys, is then divided into two principal branches, which having received single trunks of the middle part of the body, are divided in the kidneys.

In the genera furnished with large kidneys, part of the veins, like individual trunks, pass from the middle part of the body to the kidneys.

From these the vena cava arises; for the veins which convey back the blood from the kidneys (the renal, strictly so called, or *venæ renales revehentes*) unite with the veins of the testicles and ovaries.

This arrangement of the venous system is found in the *raiæ* (ray), *squali* (shark), *esoces* (pike), *pleuronectæ* (flat-fish), &c.

The third modification almost similar to the last, differs from it in this one circumstance, that the caudal vein, besides the veins going off to the kidneys, gives a large branch to the vena portæ, so that the blood of the posterior and middle part of the body, is conveyed partly to the kidneys and partly to the liver. The vena cava exists quite in the same manner as in those fishes, whose venous system is formed according to the second modification. But in this class of animals, it has been observed in the *muraena* (eel family), and *lophius* (frog-fish, toad-fish family) only.

In all amphibious animals, this venous system assumes the third modification, varied according as the posterior extremities, or the tails of the animal are larger. We have further to remark, that it derives veins from the organ peculiar to these animals. This, which we shall distinguish by the name of the proper organ, consists either of a double membranaceous sac opening into a cloaca, and very frequently containing a pellucid fluid, or of an oblong membranaceous sac filled with fat, and also united with the cloaca.

We may now shortly review the various classes of those animals, according as the venous system of each is modified.

*Ophidii.*—The proper organ in these amphibia consists of two long membranaceous sacs filled with fat. The venous system is composed of the caudal vein, which, being divided, goes to the kidneys, and the returning renal veins anastomose with the vena portæ. The veins of the proper organ, and of the anterior abdominal muscles, form a primary trunk, which flows into the vena portæ above where it enters the liver. But after it has entered this organ, it receives some smaller venous trunks from the anterior abdominal muscles.

The vena cava arises from the proper renal veins, i. e. those which return the blood,—which unite with the veins of the testicles or ovaries.

*Saurii.*—The proper organ of this tribe consists of a membranaceous and cellular sac filled with fat, and situated on each side of the inferior part of the abdomen.

The caudal vein unites with the ischiatic vein and a branch of the crural vein, and in this way forms the vein going to the kidneys. The other branch of the crural vein, uniting with a similar one on the other side, receives veins arising from the proper organ and inferior abdominal muscles, passes to the portal vein, and pours the blood into it before it enters the liver. Some veins arising from the anterior part of the abdominal muscles, pass through the liver, and flow into the trunk of the portal vein.

The vena cava is formed in the same way as in the animals already mentioned.

*Chelonii.*—The proper organ of this tribe surpasses that of the others in magnitude; it is composed of a cellular membrane, extended over the whole inferior part of the body, and filled with fat.

The caudal vein, united in various ways with the vein of the posterior extremities, forms the conveying renal vein of each side. The other crural veins, with those returning from the proper organ in different places, partly form a secondary or accessory conveying renal vein, partly at the inferior parietes of the abdomen, either separately, or united above, pass to the liver, and there unite with the portal vein.

The vena cava is composed of the returning veins of the kidneys, testicles, or ovaries, in the same way as in the other amphibia.

*Batracii.*—Their proper organ resembles a membranaceous sac, communicating with the cloaca. The caudal vein, which is small, unites with the ischiatic vein, and, having received an anastomotic branch from the crural vein, forms the conveying renal vein. The other branch arising from the crural, proceeds to the inferior part of the abdomen, and there unites with a corresponding branch of the other side, receives the returning veins from the proper organ, and forms a common trunk, which, having received the veins arising from the muscles of the lower part of the abdomen, proceeds to the portal vein.

The origin and distribution of the inferior vena cava is the same as in the other amphibia.

In the class of birds, we find the venous system arranged and composed according to the third modification. And indeed we have here to observe few variations, and those of less importance. But in these animals, the transition to the mammalia is observed, since the venous system described by us is united with the common one.

The caudal, ischiatic, and crural veins, united in different manners, flow to the kidneys, distribute their branches there, and give off a larger anastomotic branch to the portal vein.

But the crural vein having given off a superior branch to the superior lobe of the kidney, and the inferior branch being united with the ischiatic vein, gives off a middle branch going to the vena cava.

This vein, as in animals of the first class, is composed of the returning veins of the kidney, and of the veins of the testicles or ovaries, and, having received anastomotic branches arising from the crural, forms a trunk. All the blood therefore, which, in birds, returns from the posterior part of the body, is carried partly to the kidneys, partly to the portal vein, and partly, but in small quantity, conveyed in a direct manner to the vena cava.

This venous system in animals of different classes, which in many respects differ from each other in structure and organization, exhibits a perfect and complete analogy of organization and composition.

By correct anatomical investigation, and many experiments instituted upon living animals, we are convinced that the venous system, which we have now described, is destined to *convey the venous blood returning from the posterior or middle part of the body to the kidneys, or to the kidneys and liver*, and regulates in those organs the functions of secretion.

Hence in birds, reptiles, and fishes, *the secretion which takes place in the kidneys is effected by means of veins and venous blood.*

With regard to the origin and formation of this system, examinations instituted upon the embryos of birds, and some amphibous animals, have taught us that it owes its origin to the omphalo-mesenteric veins. It is therefore probable, that this system begins first of all to exercise its functions.

Further, we have continued our investigations upon animals of inferior orders; and we have already observed, that, in the mollusca, many veins are distributed upon the organ called the calcareous sac, and that the fluid secreted in this organ in the *mollusca gasteropoda*, contains a large quantity of *uric acid;* and we therefore think that organ is analogous to the kidneys of vertebral animals.

Since in many insects we find that the biliary vessels, so called, abound in uric acid, those organs are to be received into the same order.

Oken remarks, that this venous system was also discovered by Bojanus, who even gave figures of it in the tortoise in 1817.*

*Copenhagen*, 1. *September*, 1821.

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* This paper was originally published in the first number of the Isis of Oken for 1822,—a German periodical work, perhaps the most valuable and interesting, notwithstanding the mystical principles of its editor, of the present day. As the communication contains matter not merely curious as anatomical information, but which promises to be useful in explaining some of the phenomena of secretion, especially those of the urinary function, we have lost no time in laying it before our readers.

# PART II.

## CRITICAL ANALYSIS.

### I.

*Traité des Maladies de L'Oreille et de L'Audition.* Par J.-M.-G. Itard, Docteur en Médecine de la Faculté de Paris, Médecin de l'Institution Royale des Sourds-Muets, Membre de l'Académie Royale de Médecine, Chevalier de la Légion-d'Honneur. Deux tomes. A Paris, 1821.

The progressive advancement of the healing art has been attended in its practical exercise with an effect,—which is the ordinary result of increasing knowledge of its true powers and actual limits, an intimate acquaintance with its errors and defects, and the most probable mode of correcting the one and supplying the other. Besides the general divisions of medecine, surgery, and midwifery, the exercise of which it has been found best, in particular circumstances, to appropriate to different orders of practitioners, the diseases of the teeth, the eye and the ear, have become either so numerous and important, or have at length attracted so much attention, that their more exquisite knowledge and treatment have been likewise claimed by distinct orders of the profession. It is not our purpose, as it is not our inclination, to disapprove of this arrangement in practice, in which we think such subdivision at once necessary and beneficial; but we trust that it will never be carried to such an extreme, as to prevent the cultivators of these useful departments of practice, from availing themselves of the aids which they will assuredly derive from the knowledge of the general principles of medical science. It is only in this manner that the duties of the dentist and oculist, which have not at all times escaped the imputation of charlatanism, can claim and receive that honourable estimation, to which, as branches of a great liberal profession, they are justly entitled. While the necessity of an acquaintance neither general nor superficial, with the sound and morbid actions of the living body, shows the propriety of connecting the study of these arts with the great principles of medicine and pathology; we are most willing to admit, that their perfect and proper exercise requires them to be separated in practice, and allotted to different orders of inquirers, who, to the general qualifications of the well informed pathologist, should unite the taste and talent for cultivating, in a more direct and particular manner, the department especially assigned to them. From such subdivision of scientific research judiciously conducted, the happiest effects may be anticipated. When the zealous pathologist, whose intellectual training has been conducted on those comprehensive principles, which prevent him from dwindling into a perfect *routinier* within his own peculiar circle,—a wizard within his charmed ring,—directs the full energy of an observing and perspicacious mind to one division of medical science, and in ts cultivation neither forgets the application of those general principles, nor is biassed by the peculiarities with which his researches make him conversant; the result is generally that correct and minute acquaintance with the morbid processes, which affords the only rational hope of improving the art. Equally remote from the imaginary and unimportant distinctions of the mind, which is exclusively devoted to one subject, and perhaps to one view of that subject, and from the vague and sweeping generalities of the superficial practical man, he catches with a truly aquiline glance, the true appearances of natural and morbid phenomena, and traces their actual course and genuine character with the fidelity and accuracy of the unbiassed observer of nature.

We could scarcely, we think, name a family of diseases in which this distribution of labour and appropriation of research are more necessary, or in which it would be more natural to expect beneficial effects to result from such a mode of investigation, than those which are incident to the organ of hearing. To pass over their importance, which is undoubted, and the deplorable state of isolation to which patients of these maladies are reduced,—which is the most common and perhaps the most justifiable apology which an author can offer,—they are so obscure in their nature and distinctive character, so liable to arise from peculiar states of the brain, the circulation, or the general system, that nowhere perhaps are the researches of modern pathology more necessary; and it would be fastidious criticism indeed that would require apology for such investigation. It has been indeed said, that the obscure and hopeless nature of these diseases tends to render all inquiry fruitless, and therefore unnecessary; but it may be observed, that the principal cause of this obscurity is unquestionably our ignorance of the function in its healthy state; and as the situation of the organ is by no means such as to facilitate the researches of ordinary inquirers, we derive a smaller proportion of information from those who are not professed anatomical and pathological students, than in any other department of medicine or surgery. Such causes, we believe, have contributed in a considerable degree to render the profession less generally and less accurately informed on the nature of acoustic diseases, than on any other order of local maladies. While Hunter, Blake, Fox, Delabarre [*] and Maury, [†] have done all that physiology and mechanism could accomplish for the properties and diseases of the teeth, and ophthalmic pathology and surgery have been carried to an unexpected degree of perfection by the labours of Scarpa in Italy, Beer in Austria, Saunders, Travers, and Veitch in England, and Weller in Prussia,—the maladies of the organ of hearing have either remained in undisturbed tranquillity since the days of Duverney and Valsalva, or have received only a very partial and limited attention from the occasional observations of ingenious men. The only work in this country which presents any valuable information on the subject, is that which Mr J. Cunningham Saunders published in 1806, on the Anatomy of the Human Ear. The manner in which the nosographical part of this work is done, will never fail to make the premature death of that discerning surgeon be felt with unceasing regret. His knowledge of anatomy was so autoptic and accurate, and the precision of his mind enabled him to apply this in a manner so direct and satisfactory—to illustrate and treat the affections of the part, that we are uncertain whether we can mention two works, which, so far as they go, contain so much really useful matter, as that which we have now noticed, and his posthumous work on Iritis and Congenital Cataract. Of the Treatise of Mr Curtis, we are unwilling to express our opinion; for, if we except what has been evidently copied from Mr Saunders, there is in truth so little information of any moment in it, that we are disposed to think that the author would have better consulted his own reputation, if he had published only what related to his acoustic instruments. It is a treatise not on diseases of the ear, but simply on one or two peculiar affections, and on the means of alleviating their effects. Nothing indeed proves so clearly the low ebb at which the science of the aurist is in this country, as the character of the small number of works which have been recently published on the subject.

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[*] *Traité de la Partie Mechanique de l'Art du Chirurgien-dentiste;* par C. F. Delabarre D. M. chirurgien-dentiste du Roi (en survivance), &c. 2 vol. in 8vo, avec 42 pl. 1820. A Paris, chez Gabon, Libraire.

[†] *Manuel du Dentiste pour l'Application des Dents artificielles incorruptibles*, suivi de la description de divers instrumens perfectionnés, avec 4 pl. Lithographiées; par C. Maury, chirurgien-dentiste. In 8 de 5 fuilles. Paris 1820, chez Gabon, Libraire. *Vide* also,

*De l'Arrangement des Secondes Dents, ou la Methode naturelle de diriger la deuxieme Dentition, soumise un jugement de la raison et de l'experience;* par M. Duval. Broch, in 8vo, de 77 pag. Paris, 1820.

It will not, therefore, be matter of wonder, when we inform our readers of the great expectations which we entertained when we first heard the work of M. Itard announced, and the impatience with which we waited for its perusal. Whether there was any good reason for such feelings, our readers will probably discover before we conclude this article.

The work of M. Itard presents three great divisions. In the first, he has given an account of the structure, both human and comparative, of the organ, and attempted to show what is true and what is false, relating to the properties of the individual parts, and the function of hearing in general. In the second general division, he has examined these parts in the state of disease, and described the pathological changes to which they are liable. The third part of his work, which, in his arrangement, constitutes merely the sequel of the second, is by far the most elaborate, the most extensive, and, we may add, the most interesting. It consists of a minute detail of the varieties of morbid hearing, some of which depend on the changes which are examined in the second part; of others, the pathological causes of which are unknown,—with a multitude of cases and observations; the object of which is, in general, to discover the changes of the organization which have given rise to these maladies, to determine the practicability of removing or alleviating them;—and the whole is concluded with an examination of the modifications which congenital deafness assumes, and observations on the education of surd-mutes.

I. Although we are not clear about the propriety of long elaborate anatomical descriptions before treating of the diseases of the organ in question, and although we might urge some very rational objections against the transcription of facts which are uniformly best found in the original authors, yet we shall not indulge in any censorial animadversions on this error in the hands of M. Itard. It is sufficient to say, that he has examined critically and historically the steps by which anatomists have been gradually led to their present complete knowledge of the human ear; that he has made a very judicious and liberal use of the labours of Meckel, Scarpa, Soemmering, and Saunders, and has nearly repeated the whole of Cuvier's admirable and accurate account of the modifications which this organ presents in the different tribes of the animal creation. As our present object is neither the anatomy nor the physiology of the organ, we must waive both; and, presuming that they are already familiarly and distinctly known to our readers, at least more so than we could hope at present to make them in these pages, we shall proceed to put them in possession of the most important part of the nosological and practical information. We follow as nearly as we may, the order of our author.

II. The morbid changes incidental to the organ of hearing, considered as an assemblage of tissues endowed with animal and vital properties, are, according to M. Itard's arrangement, of three kinds. 1. Diseases common to the internal and external ear. 2. Diseases confined to the external ear. 3. Diseases which can occur only in the internal ear.

1. Among the first class, it is easy to see that inflammation must hold a conspicuous place. Marked by Vogel in his nosology, under the name of Otitis, a term which our author prefers to otalgia,—which is used by Cullen; it nevertheless had obtained little attention from practical writers till the year 1807, when M. Alard made it the subject of a thesis, in which he left little to be examined or said by those who should succeed him. According to the observations of this physician, as confirmed by the experience of our author, it is possible to distinguish two species of this disease, according to the mode in which it terminates; one catarrhal, the other purulent, and these, again, ought to be distinguished as occurring in the external or internal ear.

α. The external catarrhal *otitis* occurs most frequently in young subjects of the strumous diathesis, or in whom there is a tendency to catarrhal states of the mucous surfaces, or cutaneous eruptions. Besides the ordinary exciting power of cold or humid air, the metastatic action of any other disease, the presence of a foreign body in the meatus, or any similar cause, may give rise to it. In ordinary circumstances, it begins with a sense of uneasy anxiety in the external meatus, which is speedily changed into pain, sometimes acute, sometimes more sufferable, always accompanied with hissing, tingling, and a degree of imperfect hearing. If the lining membrane in this state be examined at a bright light, which however is rarely practicable, in consequence of the extreme sensibility of the parts concerned, it will be found red and swollen; and after a few hours, or in some cases a whole day, a yellowish, puriform, very fetid discharge is observed to flow from the external auditory passage. The quantity varies with the degree of inflammation; and in severe cases, it is sometimes preceded by a serous, or even a bloody exudation. The consistence of the discharge does not appear, as in most catarrhal excretions, to augment progressively, but varies considerably in the same week, or even in the same day. Its ordinary duration is from fifteen days to three weeks, after which the matter discharged becomes decidedly thicker, and resembles in colour, consistence, and even odour, caseous matter. The discharge then disappears, and is succeeded for some time by a copious ceruminous secretion.

This disease, though generally slight, is, in some unfavourable cases, tedious and unmanageable; and the frequency with which it gives rise to the chronic catarrhal otitis and thickening, or even inflammation of the tympanal membrane, must render it an object of very great consequence to the surgeon to promote a speedy resolution of the disease.

The external catarrhal otitis, though generally a local affection, may however be generated and sustained by other and primary morbid states; the most frequent examples of which, according to our author, are to be found in those varieties which depend on the action of syphilis, scrophula, scabies, and variola. In such symptomatic forms of the disease, while we recognise the same mode of action in the membrane of the cavity, the same matter discharged, at least in appearance, the duration is more lasting, and the disease more unmanageable; the inefficacy of local applications, and neither cure nor amendment,—so long as the primary disease, of which this merely forms a part, continues unsubdued.

The external purulent *otitis*, or the abscess of the ear, is by no means a common disease, (p. 167.) According to the experience of M. I., it is generally connected with an inflammatory or exanthematic state of the skin. He has often seen the fibro-cartilaginous part of the tube covered with pustules, sometimes in the serous or lymphy state, at other times distinctly purulent, which speedily burst, and were covered with yellowish crusts, with true purulent matter beneath them. The discharge in such cases was excessively fetid, and always in some degree bloody. Another cutaneous affection which may generate the auricular abscess, is the erysipelas of the head, either spontaneous or traumatic; the action of which, extending into the external canal, gives rise to an eruption of vesicles, which, on opening, are converted into real ulcers, and secrete a copious discharge of purulent matter. In one instance, it occured in a young girl of twelve years who was recovering from an attack of measles; and in another it was obviously occasioned by the application of a vesicatory to the head, for the purpose of obviating the effects of the kick of a horse. In the former case, the tumour, which consisted of a series of minute pustules which had coalesced, opened spontaneously on the fourth day after the patient first felt the canal painful, and discharged thick, bloody, purulent matter for the space of a week, when it began gradually to dry; although still the part continued swelled, and the opening contracted, without impairing the free perception of sounds.

The abscess which is thus formed in the auditory canal, is stated by our author to be, in certain circumstances, attended with the formation of a fistulous ulcer, which extends to a greater or less depth, but is generally found to establish a communication between the external integuments and the bone. We are disposed to have a different opinion of the nature and origin of this phenomenon from our author. To us it appears, that, in such an event, the disease had originally commenced in the bone or its periosteum, and that this, by a symptomatic or sometimes simultaneous action, had given rise to the cutaneous inflammation, and subsequent suppuration. We are in precisely the same state as M. Itard, who has never had an opportunity of examining these fistulous openings in the dead body, although he has satisfied himself, by the introduction of the probe, that the bone which it touched was denuded and carious. It is obvious that our view of the case does not require the bone to be necessarily and uniformly carious, which is an event that either may or may not succeed the periosteal inflammation.

β. When the otitic action is confined to the tympanal cavity and its membrane, the symptoms differ somewhat from those by which the last mentioned affection is attended. This difference may, our author conceives, be referred to two peculiarities in the nature of the part affected;—the first, that the tissue in which the disease occurs is a true mucous membrane, the secretion of which is naturally much augmented in the inflamed state;—the other, that the only outlet of this mucous secretion, in the healthy state, is the eustachian tube, the tympanal extremity of which, naturally very narrow, is readily obliterated by even a moderate degree of inflammation. The result of these circumstances is, that whenever the membrane of the tympanal cavity is inflamed, the matter, whether puriform or purulent, instead of escaping, first distends the cavity, pressing at once on the tympanal membrane, and that of the fenestra rotunda, and then forces its way into the mastoid cells. We agree with our author in thinking, that the inflammation extends, in most cases, into the mastoid cells; and we cannot conceive what had induced some anatomical authorities to deny the direct communication between the tympanum and these anfractuosities. To any one who has examined the recent ear, there cannot be the slightest doubt, that the membrane which covers the tympanal cavity is extended continuously to the cells of the mastoid process, as obviously as that of the nostrils is extended into the frontal and ethmoid sinuses. It is therefore absurd to deny the anatomical possibility of the disease being propagated along a continuous membrane from the one part to the other of the organ of hearing.

Although our author has divided the internal *otitis* into catarrhal and purulent, we must acknowledge our inability to discover the difference, either from his account of the symptoms, or from the little which we have had occasion to know personally of the disease. We conceive it, indeed, essentially irrational to attempt to establish a distinction of this kind in a morbid state of a part which must be the same in the begining and through the course of the disease, and seems to differ only in the degree to which it may proceed. Our author, indeed, himself, seems to overlook the difference, unless in the termination; and, if we understand him aright, makes one history of symptoms serve for both varieties.

When the tympanal membrane is beginning to be inflamed, the individual experiences a painful tension referred to the interior of the ear, aggravated by the perception of sounds, and the motions of mastication;—hemicrania, tinglings, and painful hissing; and in some cases, the sensation of a weight in the head. These local symptoms, which are attended with a general febrile state, would not be sufficient to characterize the disease, were it not for the state of the throat, and the external passage, taken simultaneously. In the former region the patient generally feels an uneasy roughness and tickling, which is referred to the orifice of the eustachian tube, and not unfrequently the tonsils are enlarged. The external meatus, when examined, is found in the healthy state without serous exudation in the beginning, or the puriform evacuation at the conclusion of the inflammation; and it is this circumstance which, by a negative or exclusive argument, enables the surgeon to perceive, that the disease must be in the tympanal cavity. This point is very speedily put beyond all doubt, by the sudden and copious discharge of a viscid matter mingled with bloody streaks, which escapes by this channel, in consequence of an ulcerated breach in the membrane of the tympanum. After this evacuation, the internal swelling subsides, and the communication through the eustachian tube, the obstruction of which was the original cause of the opening in the tympanal membrane, is restored, so that a direct communication between the posterior fauces and the external auditory passage is established,—a fact which is readily proved by the impulse which the flame of a candle, placed at the ear, receives from the current of air which is forced out by expiration, while the mouth and nostrils of the patient are closed. In a few cases, which might be deemed more favourable, the matter which is collected in the tympanal cavity may escape by the tube, either in small quantities, and gradually as it is secreted, or suddenly and copiously, in the same manner nearly in which it forces its way through the membrane of the tympanum. In other instances, and perhaps not unfrequently, it has been known to find an outlet by the progressive ulcerative absorption of the mastoid process,—a termination generally unfavourable, and always intractable, in so much as it is connected with considerable caries of the temporal bone.

Our author has given but a very imperfect sketch of this important, and often injurious disease, and has evidently bewildered himself in his unfortunate and useless distinction of catarrhal and purulent otitis of the tympanal cavity; and perhaps in a still greater degree, by giving a separate place to the *otorrhœa* or purulent discharge, which is in every case the result of the otitis. M. Itard is surely not such an irrational pathologist as to suppose, that even the metastatic discharges, which occur in consequence of the suppression of other evacuations, are not preceded by an inflammatory stage, however rapid and imperceptible; and we can assure him, that, whatever may be the opinions of French physicians on this subject, all this is quite changed on the British side of the Channel. The mere empirical practitioner who observes the obvious external signs, and who looks no farther, might be permitted to make such nosological distinctions with impunity; but we cannot conceal our disappointment and disapprobation, when we find a physician of M. Itard's pretensions, in a history professedly pathological of the lesions of the organ of hearing, splitting one disease into two or more, simply because there was a difference in one of the external signs. The whole length to which our author was warranted in proceeding, was to separate the *otitic* inflammation into two stages, which would have had the further advantage of connecting certain remote phenomena which occur in the progress of the disease, with the original action which gave rise to the symptoms of otitis. Of this nature are the loss of the tympanal bones, with those changes in hearing to which this may give rise, the obstruction of the eustachian tube, the abscess of the mastoid cells, &c.

The internal otitis or inflammation of the tympanal cavity may commence either in the lining membrane, or in the membranes which cover and connect the minute bones, or, in short, in the mastoid cells; and, at whatever of these spots it begins, the knowledge of the anatomy of the part will inform us, that it will speedily pass to the rest, so as to implicate every division and recess of the cavity of the tympanum. Unless this action be soon brought to a favourable termination, suppuration is, as we have already shown in the account of our author, the inevitable and natural consequence; and it rarely happens that the tympanal bones are not involved in this suppuration. It is of no consequence, after the articulations and membranes by which they are mutually connected are destroyed, whether they escape through the ulcerated membrane or not. Either they will ultimately come away, and it is perhaps the most common event of the disease, at least it is the one which we have most frequently witnessed in the tympanal otitis of this country;—or, by a more desirable course of the morbid action, a sort of adhesive inflammation either between the articulating membranes, or, if these be destroyed, between the bones, may effect an ancylosis, and render them quite immovable. In this case, the hearing of the patient is not permanently injured; for, after the inflammatory action has subsided, if the bones be retained connected to each other, they will still transmit the sonorous vibrations, though their immobility will render them unfit for those delicate motions to which, there is reason to believe, they occasionally are subservient. In the former case, where the tympanal bones are discharged through an opening in the membrane, the attention of the pathologist and surgeon is to be directed to two most important points. 1*st*, Of the four bones which extend between the tympanal membrane, and the vestibular or oval *fenestra*, it may happen, and seems often to happen, that only the two outermost, the *malleus* and *incus*, or at most those with the orbicular bone, are detached and expelled; while the *stapes* is left behind, either by the inflammation not extending to the membrane which connects its base to the vestibular *fenestra*, or by its terminating without affecting this part. When the disorganizing part of the process ceases here, the hearing is not necessarily destroyed; the sonorous vibrations are conveyed through the tympanum as usual, along its parietes to the *stapes*, and by the vestibular *fenestra* to the labyrinth,—not indeed so perfectly as if the *incus* and malleus were left unchanged, but still with sufficient perfection for most of the ordinary purposes of hearing. It is merely the *conveying part* of the organ which is injured; and much may be done, by the resources of art, to alleviate the inconvenience thus occasioned, while the *sentient* portion, as we would name it, of the ear is uninjured. *2dly*, We have sometimes, however, to contend with a modification of this disease, to which little can be done in the way of relief or cure. In severe cases, where the inflammatory, and afterwards the suppurative action, have affected the basis of the *stapes*, and the membrane connecting it to the vestibular fenestra, not only is this bone detached with the rest, but the vestibule is laid open, the sac eroded, and the water which it contains is allowed to escape. This injury is uniformly attended with irreparable loss of hearing, in the side in which it takes place; and no means which the surgeon or physician can employ, will enable the ear so affected, either to perceive or to distinguish sounds. Not only is the *conveying* or *propagating part* of the organ destroyed; but such an injury is inflicted on the *sentient*, or that part which is essential and indispensably necessary to the perception of sounds, that the ear never recovers its original properties.

*γ*. The process which we have now described is always attended with a considerable secretion or discharge of puriform or purulent matter,—constituting the disease to which M. Itard has given the name of Otorrhœa. The fluid thus discharged varies considerably in quality; sometimes bloody, sometimes serous, with thicker particles intermixed, and often minute portions of membrane or bone; a circumstance which uniformly indicates some of the osseous parts to be much diseased. Our author asserts, that it never exists without being complicated with caries, which, if not of long duration, is generally confined to the mastoid cells. This is saying, in substance, that the mastoid cells are first and most readily affected with the ulcerative process; but we think we have already shown, that, although this is a probable, it is by no means a uniform occurrence; and it is certainly quite as likely that the carious action may commence in any part of the tympanal cavity, and be thence propagated either towards the tube, the cells, or the labyrinth, as commence in the cells, and be propagated towards the tympanum and the labyrinth, as our author has, without any sufficient reason, asserted.

It is easy to see in what manner this ulcerative action, which causes the otorrhœa, will go on and terminate. Unless the disease of the bone can be arrested by some favourable change, the purulent secretion will continue, and if it be not discharged with facility, spontaneous counter-openings will take place. The most ordinary situation for these is the posterior part of the mastoid process, the integuments of which are sometimes previously red, tender, and slightly swelled. A small collection of matter is generally at this time recognised, either by its usual signs, or by actual evacuation; and if the fistulous opening thus formed be examined by the probe, the state of the bone will speedily be ascertained. We cannot perceive, in observing and watching this process, any of the difficulty or the doubt of which M. I. talks so much; and some of his diagnostic marks, for instance, the matter blackening the probe, &c. are absolutely contemptible. The surgeon who cannot, from the history and observation of the course of the disease, and from the existing symptoms, determine whether the bone is carious or not, must be little acquainted with the general laws which regulate morbid actions in the animal body. The termination of this disease, by its propagation along the pyramidal portion of the temporal bone, and subsequently towards the brain, is the most inauspicious that can occur. Not only is the labyrinth uniformly so much injured, that the hearing is completely destroyed, but too frequently the propagation of the morbid action to the cerebral membranes gives rise to a more formidable and intractable disease, by which the patient is generally destroyed. This fatal termination, however, does not take place quickly, unless the morbid action be aggravated by violence applied to the head, or previous or simultaneous disease of the flat cranial bones;—when he is carried off with the usual train of symptoms, denoting at once affection of the head, and great febrile commotion, and which Pinel and his followers have named adynamic. If the course of the disease be not accelerated in this manner, the discharge continues, and is accompanied with violent and uncontrollable cephalæa, much general irritation, loss of strength, and finally, a state of marasmus, which is at no remote period succeeded by an acute form of the disease and death. (p. 211.)

This formidable malady does not in all instances commence in the tympanal cavity, and extend inwards towards the pyramidal portion, and the cerebral membranes. The course of its phenomena may be quite the reverse,—and, originating in the interior of the cranium, may pursue its disorganizing career in the direction of the tympanum, until its existence is rendered obvious by the purulent discharge from the external canal. M. I.

divides this affection into primitive and consecutive, according as it occurs, idiopathically and spontaneously, as it is said, or is the consequence of external injury. As there is no difference in the nature or progress of the phenomena which constitute the disease, we account the distinction quite useless in a practical light. The otorrhœa which is formed in this manner is, however, somewhat different from that which is the natural termination of otitis, in so much, as it is preceded by more decided cephalic symptoms, and is rarely accompanied with any marked affection of the auditory function, till the disease has made very considerable progress. It is, indeed, to be viewed as a true *encephalitis*, or *meningitis*, which ultimately terminates by otitis and its ordinary sequelæ. It is by no means clear why this inflammatory action should occur at this precise spot of the brain or its membranes, and should be so conveniently situated for the purpose of affecting the external ear. Our author does not, so far as we can perceive, offer any thing like an explanation of the fact; but observes, that neither writers who have professedly treated of diseases of the brain, nor those who have written on the effects of external violence, have devoted sufficient attention to this not uncommon termination of cerebral disease. (p. 214.) To us it has long appeared, from an observation rather extensive of the effects of violence inflicted on the head, that the direction which the mechanical impulse affects, in perhaps seven cases in ten, is the most common cause of the phenomena which M. Itard remarks. It is well known, that the more severe cases of concussion, as they are named, are frequently attended with hemorrhage from the external auditory canal, and in those cases which have been carefully examined after death, it has been found, that vascular rupture and extravasated blood have been most frequently observed either in the immediate vicinity of the pyramidal part of the temporal bone, or in that part of the brain which corresponds to this point. Had the individuals, to whom such injuries occurred, survived the primary effects, it cannot be doubted, that the process of reaction or inflammation would have commenced here; and that the ultimate effects, if they had gone on, would have followed the same tract which the mechanical impulse had originally traced. We do not attempt to apply this to the idiopathic cases, which, we must admit, are to us inexplicable.

δ. The name of Otalgia has been applied rather vaguely to almost every kind of painful sensation, of which the ear is the seat, and which could not be referred to inflammation, or the presence of a foreign body. Our author seems pleased with the notion which Hoffman entertained of it, when he gave it the name of *otalgic spasm*; but he admits that this pathologist must have confounded it in some cases with otitis, as he speaks of this spasm being succeeded by discharge and abscess; and he further thinks it impossible to determine whether it be a true neuralgia of the *chorda tympani* or the acoustic nerve, or only a slight irritation of the membranes with which the various cavities of this organ are covered. He remarks, however, on the symptoms to which this name is given, that whether they come on suddenly, or succeed to odontalgia or erratic rheumatism, they are not, as those of *otitis*, progressive, but in a very short time attain their greatest intensity, and very often disappear all at once as quickly, and are experienced in some other part of the head, or leave the patient without complaint. There seems no foundation, he thinks, for what some authors have stated, that it may be attended with delirium or convulsions;—for when these symptoms appear, the practitioner ought to attribute them to a cause of a more active and injurious nature, and employ his measures accordingly.

The otalgia may be symptomatic of other diseases, as cynanche, diseased teeth, neuralgia of the face, or, as occurred in a case which fell under the observation of M. Itard, in consequence of the growth of a small tumour in the vicinity of the ear.

The treatment of this complaint our author judiciously modifies according to the cause of it. His details, however, are so confused, and so childishly inert in our opinion, that we must not waste any time on them.

5. Of all the humiliating and shocking processes of which the human body is occasionally the seat, there is perhaps none which is more completely repugnant to the feelings than that of the generation of insects in various parts of it. Those at least, whom habit or education have not enabled to subdue or diminish the feeling, look on an earthworm or a maggot with such feelings of unmingled disgust and insurmountable horror, that it is hardly possible to conceive, in any malady, though known to be certainly fatal, circumstances which could in a more effectual manner poison the small measure of simply unpained existence which the kindness of Heaven has left to human beings. The alimentary canal has been long known to be a common seat of these parasitical animals; and Redi, Andry, Pallas, Joerdens, Brera, Rudolfi and Bremser, have shown, that there is scarcely a part of the human body in which they have not been met with. To most of our readers, it is probable that the labours of these authors are tolerably familiar; and we dare say they may have shared some of our feelings, when, on perusing

the descriptions of the cases, we have often paused in a sort of suspense of admiration, half incredulous, half sickened with the stories of excruciating and irremediable suffering, till at length a temporary respite is obtained, when some of these loathsome reptiles have made their escape from the body of the unfortunate victim. The attention of M. Itard has been naturally directed to the circumstance of their nidification in the external meatus and tympanal cavity of the ear; and he has certainly succeeded to a miracle, in collecting a store of as incredible, as interesting, and, we may say, as shocking details of entozo-biography as any of his predecessors. These we have neither time nor inclination to lay before our readers, and must refer them to M. Itard's own history of the subject. To the medical practitioner, the most important points are, the question of the circumstances which give rise to their origin, and the means of removing them from the part affected. On the former of these subjects, we cannot discover that M. I. is exceedingly clear; but he seems to think that, as they are generally met with in cases of otorrhœa, the purulent matter is the chief attraction to the insects which may deposite the *ova* from which the worms are produced. To prove the possibility of this, he quotes the authority of Tharantanus, Volkraner, Panaroli, Kerckringius, Morgagni, Leaucaud, and finally, Sauvages; and gives a number of cases from different authors. We extract one which is perhaps the most interesting in this point of view.

"In the month of July 1756, a child of 6 years of age, son of Mr Seguy of Montpellier, was afflicted for about a month with a slight suppuration of the external meatus of the left ear, which was attended with no pain. His parents satisfied themselves with bathing the helix with tepid water or decoction of barley. On the 14th of the month, as the boy complained of acute pain in this ear, milk from the female breast, and barley water, were injected into it with some relief. Some hours after, the pain recurred with the same intensity, and was again alleviated by the same remedies. On the two following days (15th and 16th), the pain of the ear continued to recur and be relieved alternately, but at much shorter intervals, and they had then dropped a small quantity of almond oil into the passage. On the 17th, the pain was so acute in the evening, that the child had convulsive motions, and some drops of blood escaped from the ear. M. Regis was now called, who tried to sooth the pain by bleeding, the remedies already specified, and the anodyne drops of Sydenham joined to the almond oil; but all unavailingly. On the morning of the 18th, the pain was unabated, the convulsive motions became more frequent and more considerable towards noon, and blood trickled almost incessantly from the ear. The melancholy situation of this child determined the parents to consult M. Farjon, who continued the system of bleedings, narcotic and soothing remedies, without success. After the symptoms had raged with unabated violence the whole of that day, so as to give rise to fears for the life of the boy, about seven in the evening the convulsions became less violent, the pain diminished, and the patient complained of something gnawing his ear. The mother, who was then alone with him, on examining the part, perceived a white body in the auditory canal, and, having introduced a needle, succeeded in extracting a pretty large white worm, which she threw hastily on the ground, where it writhed about and crept. Terrified at this occurrence, she sent for M. F. and the surgeon, who instantly recognised the cause of the child's sufferings, and, as they had not entirely disappeared, suspected there might be more of them. By means of small forceps indeed, which the surgeon introduced, he extracted two worms similar to the first. The hemorrhage then ceased, the pain subsided, and the convulsive motions disappeared; the child quickly fell asleep, and, when he awoke, seemed perfectly well, with the exception of a very slight suppuration in the auditory canal, which dried up in a few days, under the use of the barley ptisan, and the waters of Bareges.' Vol. I. p. 311.

The extract goes on to state, that the worms were enclosed in a phial, in which they were, in the course of 13 days, converted from the chrysalid or pupaceous to the flying condition, when they were recognised to be the usual species of flies which frequent places occupied with animal and vegetable matters in a state of putrefactive decomposition.

2. *α*. Among the diseases peculiar to the external ear, the most common and the most severe are polypous growths. These bodies do not appear to be of the same nature as those which are found in the nasal cavities, and other regions, covered with a mucous surface. The membrane of the external meatus from which they are produced, is not of a mucous nature; and, though their presence sometimes occasions a puriform discharge from the canal, they are most frequently the result of long-continued and obstinate otorrhœa, and very often attended by a fungating disposition of the membrane. They are always accompanied with a greater or less degree of impaired hearing. Our author very justly observes, that it is almost impossible to extract them by the forceps alone; and the ligature is generally the most efficacious means of removal.*

*β*. The accumulation of cerumen in the external meatus is usually occasioned by a morbid action of the membrane; and M. Itard believes, that, in most instances, the slight inflammatory state of the part which is observed at the same time, is the cause, and not the effect, of the increased secretion which gives rise to the accumulation. In this condition, it is liable to become thick and indurated, so as to form an actual concretion, not unlike, in some instances, to gypseous matter; in others, to the biliary calculi. They produce no pain, but merely an imperfect deafness, an uneasy tickling, and a sense of fulness and distension, which is particularly felt during the motion of mastication. This disease, which is most frequent in adults and the aged, is easily relieved and often cured by the injection of pure tepid water, which has been long known to be the best and most convenient solvent that can be employed.

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* *Vide* Saunders, p. 26. edit. 1806.

γ. The skill of the surgeon is less frequently required for the treatment of idiopathic affections of the external meatus, than for the removal of the painful symptoms which are occasioned by the introduction of foreign bodies into the external auditory canal. Our author is perfectly aware of the difficulties which attend this part of the duty of the aurist; and, after a detailed account of the alarming symptoms to which these bodies give rise, and of the failure of the best chirurgical efforts, he concludes with a recommendation to leave them to the *chirurgie expectante.* We cannot avoid looking on his plan of converting the auditory canal, in suitable circumstances, into a hotbed or kitchen-garden, as one of the most brilliant pieces of practical medicine in the whole work; but we fear that the *rostellum* will sometimes be so perverse as to shoot in any direction but that of his forceps; and even when it does advance in this auspicious manner, it will be very apt to come away without its parent grain. Vol. I. p. 347.

3. We cannot bestow much commendation on our author's view of the diseases of the internal ear. His division is indeed unfortunate, in so far as this class of diseases interferes, in a very inconvenient manner, with those which are common to the external and the internal ear; and his history of them is so meagre and unsatisfactory, that we do not think his work is in this respect calculated to remove the errors or supply the defects with which this department of nosography is still embarrassed. The whole sum of our author's instructions on this subject amounts to the following brief enumeration. 1*st*, Affection of the membrane of the tympanum, in which he considers rupture of the membrane fully, with several cases; thickening of the membrane; relaxation and tension of the membrane; 2*d*, swelling and obstructions of the tympanal cavity; 3*d*, inflammation and occlusion of the Eustachian tube; 4*th*, atrophy and compression of the auditory nerve; and, *lastly*, absence of the fluid of the labyrinth.

M. Itard's account of the first of these affections, does not impress us with a high opinion of his pathological eminence. We see no reason for considering the opening which takes place in the membrane, in consequence of otitis, as a rupture; for in nineteen cases out of twenty, it is the ultimate and necessary destruction by suppuration, which follows inflammation of the tympanal cavity. The only possible cases in which we can suppose this accident truly to occur, are violent concussions of the head, on which the suddenness of the force acts on the membrane too forcibly, the actual application of agents sufficient to perforate or lacerate the membrane, and perhaps some exceedingly loud and violent noises, which persons of a delicate and susceptible frame can seldom bear without injury, either to this membrane or some other part of the organ. The first is known to be one of the most common occurrences in severe injury of the head, and is in many cases justly taken to indicate a very dangerous, if not fatal species of cerebral lesion. Yet, while our author has studiously assembled all the most uncommon and actually supposed cases of rupture of the membrane, he has never alluded to this one. He has shown the same irrational idea of the pathological relation between cause and effect in his *erosion* of the membrane, *qui s'opere sans ecoulement, sans suppuration, et souvent même sans douleur.* That the membrane may be eroded without pain and without discharge, is not improbable; but the known laws of pathological processes prevent us from believing, that disunion or the loss of substance can take place in any part, without some degree or variety of that inflammatory state, which, in all other instances, is known to produce such effects. The hypothesis of M. Ribes even is still another expression of the same fact; for the successive exfoliation to which this author has recourse, and which he ascribes to the ceruminous accumulation, can in no instance take place merely as a mechanical process in brute or inanimate matter. This erroneous view which M. Itard has taken of the so named rupture of the membrane of the tympanum, has involved him in a perfect labyrinth of errors on every point relating to it. After many reflections, observations, and cases to show that it generally produces deafness, he informs us at once, that it creates a long train of nervous accidents, such as, obstinate vertigo, cephalæa, shooting pains, electric concussions in the interior of the brain, and perhaps every evil under heaven, without seeming to think that all these accidents, and the morbid state of the membrane itself, are in all likelihood parts of the same general disease of the organ,—simultaneous and associated effects of the same pathological cause. It is impossible for us to follow our author through all the devious paths into which this peculiar bias of multiplying diseases, and incapacity to distinguish the external or visible sign from the internal or unseen pathological action, has led him; and we shall say no more on this part of his work, but merely recommend his 44th, 45th, 46th, and 47th cases to the perusal of our readers, as examples of accidental perforation of the membrane.

III. In the sequel, as he names it, of his second part, M. Itard has enumerated the varieties of morbid deviation of the function of hearing, with much minuteness, and in a very elaborate manner. He refers all these varieties to three general heads. 1*st*, Exaltation of hearing, or *hypercousis*—we suppose he means *hyperacousis*, for our author is no great Grecian. 2*d*, Depravation of hearing, or *paracousis*. And, 3*d*, Diminution and abolition of hearing, or *dysecoea* and *cophosis*.

1. Of these forms of morbid hearing, the first is exceedingly rare, and we are inclined to think that it never occurs but as a symptom of some other disease. In this form it is daily remarked in morbid affections of the head, the nervous system in general, and the auditory nerve. Our author, however, has succeeded in collecting only two cases of its occurrence as a primary affection in his opinion; but, in a careful perusal of the histories as our author has given them, we see no reason to look on them as any thing but symptoms of a particular morbid state of the sentient part of the ear. The first of his examples of idiopathic hyperacusis is most evidently a part and a symptom of a general nervous and hysterical affection under which the lady was at the moment labouring; and the second is just as evidently one of the symptoms which denoted the incipient state of a disease of the auditory nerve, which ended in its complete insensibility, and total deafness in consequence. It is impossible to conceive any thing so opposite to the spirit of rational pathology as this conversion of mere symptoms into a disease, and nothing so injurious to correct and efficient practical management, as the oversight of an obscure organic change in the obvious effects to which it gives rise. The complaints of M. Itard's advocate should have been treated with antiphlogistic measures, constitutional and local, the moment he experienced the painful tension of the forehead and root of the nose; and, above all, when the excessive sensibility of the ear was so troublesome, every means of the most powerful kind ought to have been employed to allay the irritable state of the parts constituting the internal ear.

2. The same may be said of the tinglings or hummings (*bourdonnements*) which our author has selected to exemplify the second kind of deviation from healthy hearing. We can scarcely conceive an instance in which this tingling sound could be just-

ly deemed a primary disease; and, if the circumstances with which its presence is attended, be considered, it will be found that it is uniformly to be viewed as a phenomenon, which indicates a morbid condition, either of the general system, or of some part of the organ of hearing. There is scarcely any kind of depravation of hearing so difficult to explain as this; and our author does not seem more fortunate than those who have preceded him. He refers it either to the state of the blood-vessels, general or local, or to the impeded motion of the air in the tympanal cavity. Of the former, he adduces, as a proof, the circumstance of its temporary suspension, by compressing the carotid arteries, and an instance of its occurrence in a case of aneurism of the external carotid, and its diminution, as this disappeared in consequence of well-directed pressure. To show that the second cause may produce this *susurrus*, he reminds his readers of the sound which is experienced when a body of a concave figure is applied over the external ear. We cannot perceive much reason in characterizing the symptom, when it depends, or is supposed to depend, on the state of the auditory nerve, as *the false or spurious* tingling. It has an existence in this case as real as in the former; and we think that it most frequently depends on the state of the circulation, and the state of the nerve at the same time. The morbid state of a nerve is quite as real a disease as the morbid state of an artery, though we can seldom render it as obvious; and it ought to be remembered, that the beating of arteries, whether healthy or aneurismatic, does not in all subjects produce this depravation of hearing, and seems to do so only when the nerve has become unusually sensible, especially in those delicate persons whom sedentary and enervating occupations have rendered hypochondriacal, dyspeptic, or hysterical.

3. M. Itard commences the third section of his second book with a dissertation on deafness in general, in which he professes to illustrate the nature of diminution, and abolition or total loss of hearing. He very rationally observes, that it is easy to understand what is meant by deafness, but exceedingly difficult to ascertain the degree of it, especially in fatuous persons and in infants, in whom it is almost impossible to discover either the existence or the degree of it previous to the time when they begin to acquire the power of speech. He then proceeds to describe the means which he employs to determine the deafness of idiots and children, which is here totally misplaced, and tends, in no degree, so far as we can perceive, to illustrate the nature of deafness in adults. He afterwards recovers himself, however, and informs us, that though deafness

is very often an isolated disease, it may occur in complication with other morbid states, which are sometimes the cause, sometimes the effect, of the acoustic disease; and sometimes, which we believe is most frequent, the result of the same general unhealthy action. The morbid states, in conjunction with which our author thinks the function of hearing is most commonly diseased, are those of the brain, the lymphatic system, especially of the mucous surfaces and the cutaneous tissue. His illustration of these points is exceedingly vague and declamatory; and, instead of investigating the subject in a manner to render it more intelligible, he absolutely loses himself for some pages in a confused maze of observations on every thing relating to deafness,—its causes, its consequences, and its treatment.

His arrangement of the different forms and kinds of deafness, according to the pathological causes on which they depend, is the most abortive effort in didactic medicine which we have ever been compelled to inspect; and, if he had taken up the nosology of Sauvages or Cullen at a venture, and enumerated the varieties of deafness in the manner in which these authors have enumerated them, he could not have exhibited a detail more absurdly circumstantial, or which was less calculated to aid the practical surgeon. It will scarcely serve M. I.'s purpose to say, that it would be possible, in the theoretical meditations of the cabinet, to trace a more regular and more analytical classification; for he cannot hope to flatter himself, that his arrangement is less hypothetical than any other that could be proposed. The truth is, that M. Itard seems to be one of those practitioners who spend the one half of their days in expressing their horror of all theory, and the other half in giving practical demonstrations of their attachment to the most useless hypotheses, and of their incapacity either to distinguish good theory, or to apply it to practice. We must therefore leave our author somewhat, while we deliver our own opinion on the manner in which these diseases may be most suitably arranged for the use of the practical aurist.

When a patient affected with deafness is brought to the surgeon, the first point is to ascertain the degree in which the function is affected, and the manner in which it is impaired. In making this inquiry, he has to struggle with many causes which tend to confuse and darken the opinion which he must form. He cannot see the precise point of the organ which is diseased, nor render obvious the species of disorganization on which the impaired function depends; and, what is more perplexing and embarrassing still, he cannot obtain from the patient himself any distinct information regarding his own feelings, or the manner in which they vary in particular circumstances. Unless he can discover the extent of injury by the state of the patient's hearing, as ascertained by such means as are most convenient, with repeated observations on the patient in different circumstances, he must despair entirely of forming any accurate opinion, or of being of any utility in a practical way. The mere enumeration or classification of pathological states of the individual parts is of no use, unless to inform us that such parts may be injured in such a way; and, unless they be methodically connected with their appropriate external and palpable signs, will fail in throwing light on the treatment of the complaint. We conceive it is indispensably requisite to have recourse to the physiological properties of the organ, however obscure they may be, in order to guide the injuries of the aurist; and on this we should propose to rest all nosological distinctions.

The organ of hearing, considered in this view with a reference to the diseases to which it is liable in the human subject at least, may be divided into a receiving, a propagating, and a sentient part. By the first, it will easily be perceived, we understand the helix, &c. and the external canal. The propagating part is the tympanal cavity, whether the vibrations are conveyed along its parietes, through the contained air, or by the tympanal bones, or by all three courses. The sentient or essential part of the organ is the labyrinth, consisting of the vestibule, the semicircular canals, and the cochlea; and, according as these various parts of the organ are diseased, in a corresponding manner will the function be impaired. The morbid condition of either of these parts may produce deafness, but each will accomplish the same effect in a different manner.

The means by which deafness takes place, in consequence of the prevention of the reception of sounds, are, 1*st*, excrescences in the auditory passage; 2*d*, concretions; 3*d*, obliteration; 4*th*, injuries, or malformation of the helix. These causes of disease are in general so obvious, and the mode in which they injure the function is so simple and perceptible, that the duty of the aurist is limited to their removal when requisite and practicable, or the diminution of their effects when the circumstances demand it.

The varieties of deafness arising from the second class of causes are seldom so easily recognised; and they generally require the sedulous and repeated observation of the surgeon to distinguish them, and to determine the appropriate remedy. They may in general be said to consist of every disease which is attended with a change in the state of the tympanal cavity, its lining membrane, the chain of minute bones which it contains, the anterior termination of the cavity by the eustachian tube, and the posterior recess in the mastoid cells. Every morbid change in any one of these parts will affect the function in a greater or less degree; but, as some of these changes have a very trifling effect, and others are attended by more remarkable injury to the function than might be anticipated, and as the mode in which this takes place seems not to be generally known, and is never noticed by our author, we are induced to endeavour to make it somewhat clearer than we have hitherto seen it made, by some few observations.

We presume it to be generally known by all intelligent surgeons, in what manner deafness arises from obstruction of the eustachian tube, or any morbid change in the mastoid cells. We deem it certain, that, whether the mucous membrane of the eustachian tube be inflamed, or be thickened chronically, or be lined by a morbid secretion, either of these states will sufficiently account for the degree of deafness which is found to attend them. We account it equally certain, that if the membrane which lines the mastoid cells be inflamed, or be covered by morbid mucus, lymph, or puriform fluid, or extravasated blood, or be removed by ulceration, any one of these changes will be sufficient to produce a considerable lesion of the function of hearing; and we think we are quite correct in asserting, that no cases are recorded which can in any degree invalidate this conclusion. We may further add, that any inflammation, or swelling of the tympanal mucous membrane, or any considerable alteration in the consistency of the fluid secreted by this membrane (*engouement*), or, in short, blood effused into the tympanal cavity, will necessarily impair the power of distinct hearing in a degree corresponding to the extent of change induced. So far our knowledge may, without violence, be said to be tolerably correct, and its parts consistent with each other. When, however, we advance a little further, the confusion and obscurity with which our progress is embarrassed, are truly discouraging. It is well known to the majority of practical surgeons, that the tympanal bones are sometimes discharged in consequence of otitis, with very various degrees of influence on sound hearing. In some instances, the hearing has been at first impaired, and afterwards recovered; in others, it has been affected only in a very trifling degree; and in others, again, it has been irreparably injured, and irrecoverably lost. This variation, in effect, from causes apparently the same, has led many to conclude, that the tympanal bones were of no use whatever, and that, when they had been implicated in disease, no correct inference on the probable injury to the function could be formed; and that therefore it was impossible, from such elements, to determine the possibility of cure, or the chance of recovery. A close observation, however, of such examples of disease, and the knowledge of those modifications which the tympanum and its bones undergo in the various classes of the animal creation, have led us to a very opposite conclusion. Without entering into those minute variations which are connected rather with family or generic modifications, than the great general parts of the function, we may observe, that the presence of the tympanal bones in all the mammiferous animals, of the bi-ramified *osselet*, with its muscle in birds, of the two tympanal bones in the canine family, and one in most other reptiles, while no similar arrangement can be perceived in the fishes, shows obviously that it is connected with some general fact in the mode in which these different classes of animals perceive sounds. We are indeed inclined to conclude, that these bones, and their situation between the membrane and the vestibular fenestra, have a direct relation with the kind of medium through which the sonorous vibrations are conveyed. All those animals which, in ordinary circumstances, hear sonorous vibrations transmitted through the atmosphere, are provided with a tympanum and with tympanal bones, while this part is completely wanting in the entire class of animals which can hear through water only. It would appear, that, in the latter element, the sonorous vibrations are so much more intense, and affect the sentient part of the organ so much more powerfully, that the nice mechanical contrivance of the tympanum is unnecessary. It cannot be said that any valid objection to the truth of this opinion is to be found in the cetaceous family; for, whether the hearing of these animals is rendered indistinct or not, when under water, it is quite certain that they hear, in much greater perfection, sounds which are transmitted through the atmosphere. We may further remark, that in the two reptile families in which the tympanum is wanting, a vicarious arrangement is provided for performing its duty. In the fishes, on the other hand, where the animal hears necessarily at all times through water, no arrangement of this kind is observed; but the sonorous vibrations are conveyed directly from the water to the sentient part of the organ.

These observations show clearly, by inductive and analytic inference, that the tympanum and its osteo-muscular apparatus must have a relation to the medium through which the sonorous vibrations are conveyed; but they further show, that these parts are not essential to simple hearing. It is on this account, that, though the entire chain of bones be expelled, the hearing, as we have already mentioned, is not entirely destroyed, unless the tympano-vestibular membrane is affected. If the stapes be left adhering to this membrane, the patient will possess a very comfortable degree of hearing; if the stapes is destroyed while this membrane is uninjured, he will still hear, although less perfectly; and it is only when the tympano-vestibular membrane is destroyed, that the hearing is very much, perhaps irreparably injured. We mention this complete loss of function as a probable result only; because the researches of Scarpa have rendered it likely, that, to a certain extent at least, the duty of conveying sound by these bones to the vestibule may be performed in a vicarious manner by the round or cochlear fenestra. An attentive and reiterated examination of this aperture in the human subject, and in many animals, led this eminent anatomist to the conclusion, that it forms a secondary or interior tympanum, and that the tympano-cochlear membrane is an inner tympanal membrane. He ascertained, that the round window, as it was named, is not a hole, but a canal;—that it has an exterior or tympanal orifice, not round, as its name had long indicated, but triangular,—an internal or cochlear orifice, not parallel to the external one, but presenting an obvious furrow or depression, in which the tympano-cochlear membrane is inserted;—that this membrane is not plain or flat, but concave towards the tympanum, and convex towards the cochlea, where its prominence is so considerable as to be contiguous to that part of the *scala tympani* which is formed by the spiral plate, and to occupy the entire calibre of this division of the cochlea. These peculiarities in the structure and position of this part of the organ, with its early and full development in various animal tribes, and its appearance in the ears of birds, have induced Scarpa to think that the tympano-cochlear membrane, and the mode in which it is fixed in the round window, perform the office of a secondary or internal tympanum, in receiving, concentrating, and communicating to the cochlea those vibrations which are not conveyed to the vestibule by the osteo-muscular chain. *

We have ventured on this digression, with the express purpose of showing the practical conclusions to which the researches of the Italian anatomist distinctly point. If his opinions on the tympano-cochlear membrane be just, it is easy to see, that the destruction or loss of the tympanal bones is not an injury which necessarily implies complete, or even considerable abolition of hearing. If the tympano-vestibular membrane be not very much diseased, indeed,—if it be not eroded by the ulcerative process, we see no reason to believe that the patient may not enjoy a degree of hearing quite sufficient for most of the purposes of daily life. The sonorous vibrations, which may be rendered more intense by the concentrating power of the acoustic tube, will affect the secondary tympanum with sufficient power to enable the patient to hear moderately distinct sounds.

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* Antonii Scarpa in Mutinensi Archigymnasio publici Anatomes et Chirurgiæ Professsoris, de Structura Fenestræ Rotundæ Auris, et de Tympano Secundario Anatomicæ Observationes Mutinæ apud Societatem Typograph. 1772. Item extat in Joannis Jacobi Roemer, Delectu opusculorum ad rem medicam spectantium, Turini et Lipsiæ, 1791.

To the practical surgeon, the most important point is evidently the means by which he can truly determine the extent of injury, and the probable chance of cure. A little reflection will show, that these must be derived from the history of the case, and from those signs which indicate, in a negative manner, that the morbid action has not extended to the tympano-vestibular membrane and the labyrinth. The surgeon must ascertain whether all, or any of the bones have been discharged; he must remark the extent of purulent secretion; he must discover whether the solid parts of the head still convey sonorous vibrations distinctly to the labyrinth; and he must further ascertain, whether the labyrinth or the sentient part of the organ be still possessed of its original powers. If a careful examination of these points has satisfied him, that whatever has occurred in the tympanal cavity, the vestibule is still unaffected, he has every reason to assure his patient that much may be done in the way of rendering him more comfortable, by a well-directed employment of the resources of art.

On our author's catarrhal deafness, by which he understands that which arises from morbid, mucous, or puriform matter in the tympanum (*engouement de l'oreille interne*), and that deafness which arises from blood effused into the cavity (*la surdité par congestion sanguine de l'oreille interne*), we cannot make room for any remarks, as they present no peculiar features, unless in the way of treatment, which we shall come soon to consider.

The three subsequent chapters are devoted to the consideration of the deafness which arises from morbid states of the acoustic nerve, which M. Itard refers to the three kinds of compression of the nerve, paralysis of the nerve, and a plethora, either general or local. To this mode of treating the subject, our pathological education, and practical knowledge, suggest certain very strong objections, in which we think we shall not be contradicted by the most intelligent and enlightened medical observers in this country.

In the *first* place, we by no means approve of the term paralysis of a nerve; and we must avow our incapacity to form any any thing like a distinct and correct idea of the term. We are not unaware that many people, even in this country, are in the habit of talking of paralysis of the retina, or of the gustatory, or any other nerves;—that Sauvages * has referred amaurosis to resolution of the retina, cophosis to resolution of the acoustic nerve; and that Sprengel, † and perhaps not a few others, have, in like manner, indulged in this unlimited employment of the term. We cannot, however, discover any good reason for deviating from the usual practice of the Cullenian pathology, in restricting it, exclusively and expressly to denote that state of the muscular system, in which the component fibres have lost the power of voluntary contraction. If, indeed, we do not restrict it in this manner, but apply it indiscriminately to alterations in the properties of any other tissues, it is hard to say what are to be viewed as paralytic affections, and how many tissues may be said to be occasionally affected with palsy, or, in short, by what character we are to recognise this condition. We must protest in the most decided language, against all such innovation,—against all those vague and indiscriminate applications of terms, which are at once the offspring of ignorance, and careless habits of observation, and favour in an eminent degree the propagation of loose and illogical speculations, and all that irrational and endless neology with which we have seen true science lately incumbered. Paralysis, in our judgment, means expressly loss of power in a muscle of voluntary motion, whether this loss of power depend on a morbid state of the muscle itself, or on an affection of the nerves which minister to its powers. Resolution or paralysis of a nerve is a direct absurdity, unless we alter entirely the nomenclature, both of the physiology and pathology of these diseases; for it is obvious, that we thus employ the same term to denote two states which differ from each other, both in time and in place. Suppose, for example, the whole of the muscles of the left arm, the left leg, and the left side of the trunk in any individual, had at once, as is often the case, lost the power of contracting, when the individual willed to move his limbs; what name would M. Itard apply to this condition? We presume that, with most other medical men, he would say that the patient was affected with hemiplegia, that the whole of the muscles of the left side were paralysed. He would never surely think of saying that the axillary, the spiral, or the sciatic, or the anterior crural, or the tibial nerves were paralysed; much less would he think of paralysis of the brain. If he did, his language

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* Classis vi. Debilitates, &c. XVIII. Paralysis. Nosologia Methodica.

† Institutiones Medicæ, Patholog. Special, Lib. V. Sect. II. Eclyses, Cap. II. 496.

would certainly produce some astonishment among physicians. Yet it is no less certain, that, in the very affection to which we now allude as an example, the paralysis of the muscles is occasioned by an injury done either to the brain, or to that part of the nervous chords which is connected with this organ;—that the want of loss of power in the muscles was actually preceded by another event which took place in the brain, or in the nerves which are distributed to these muscles; and that, if the former of these events be named, as it most justly is, Paralysis, it is utterly impossible to apply the name with equal justice to the latter, or to the change which takes place in the brain, or nervous chords. Nothing, in short, but the most unphilosophical and inconsistent confusion of ideas, and their expressed signs, can ever sanction this use of the term *paralysis* of the acoustic nerve; and we shall therefore merely employ the common term of insensibility, which expresses the idea intended well, and with sufficient precision; or, if this be deemed liable to be misunderstood, and confounded with the abolition of sensibility as an animal function, we think that there cannot be any fear of inconvenience or ambiguity, if we say that a nerve, which is no longer fit for sensation, has become *anaesthetic*.

*Secondly*, We can scarcely doubt that some of our readers at least may have anticipated us in our objections to the minute and repeated subdivision which our author has made of these pathological causes of deafness that depend on the state of the auditory nerve. If a nerve be compressed, is it not rendered unfit for its function of sensation precisely in the same manner, whether that compression be produced by serous fluid, as in several organic diseases of the brain, and after long fevers, or by blood, as in external injury, concussion, apoplexy, or, in short, by the growth of tumours? Does such a nerve not become anaesthetic, or, as our author calls it, paralytic, purely in consequence of the injury which is thus inflicted on its delicate organization? Yet the acoustic nerve becomes, in the hands of our author, paralytic, or what we call anaesthetic, in six different ways;—1*st*, by concussion; 2*d*, by convulsions; 3*d*, by apoplexy; 4*th*, by certain fevers; 5*th*, the sympathetic influence of some diseased organ; and, 6*th* and *lastly*, the nerve becomes essentially paralytic. Yet is not this all; the nerve may be compressed, according to M. Itard, but does not therefore become paralytic (anaesthetic); and in the deafness depending on local or general plethora, he never seems to consider it possible, that such a state may produce a temporary and partial insensibility of the nerve. To us it appears, that the whole of these circumstances, which we have enumerated after M. Itard, were only varieties of form in which the same general change was effected in different individuals, and in different situations. It is obvious, we think, that, whether the nerve be subjected to compression by the vicinity of a tumour, the effusion of blood or serum, or be violently concussed, or affected by the distension of blood-vessels, the same change in its organization will be produced, though in different degrees. Convulsive motions ought not to be regarded as a cause of the anaesthetic state of the nerve, but a simultaneous and connate effect, which is produced by the same morbific cause, whatever it be. The sympathetic *anaestheteia* of the acoustic nerve is observed in subjects commonly called delicate, nervous, hysterical, or hypochondriacal,—in whom the circulation is extremely irregular, and liable to local congestion, or distension of the nervous matter, and in whom a partial compression is thus produced, though in a different way. On the essential paralysis (*anaestheteia*) we cannot offer a very decided opinion; for, unless it could be distinctly proved that the aesthetic power of the nerve is liable to diminish spontaneously, and be ultimately lost, it is obvious that no positive inference could be formed on the truth of the opinion. It is certainly by no means improbable; but as the simplest and most uniform cause of anaestheteia depends on that imperceptible disorganization which is occasioned by the continued pressure of blood-vessels, it would not perhaps be very wise to change this part of the pathological doctrine, till good and sufficient reason for it were assigned.

In whatever manner, therefore, the auditory nerve becomes insusceptible of the impressions transmitted to the labyrinth, it appears that the state of it is in general pathologically the same, or, at most, a different degree of the same change, and requires the same treatment. It will be recognised by the nature of the existing symptoms, the mode in which they have come on, the absence of those symptoms which denote inflammation and organic changes in the tympanal cavity, and by the age and temperament of the patient.

Metastatic Deafness, which forms the subject of the 18th chapter, is that which appears at the moment when a morbid action, either of the general system, or of some particular region, is suddenly checked or disappears. Instances of this are found, according to M. Itard, in the deafness which ensues after rubeola, variola, gout, the speedy curing of some cutaneous diseases, as scabies, porrigo, &c. Of course, in determining on a case of matastatic deafness, it is particularly necessary to distinguish between that which is a kindred part of the same morbid action, and that which is really and truly vicarious, or alternating with the action,—a distinction to which we are not certain that our author has always adverted. Those examples of deafness which occur along with, or after rubeola and variola, are often, we are satisfied, a part of the disease; and, whether these eruptions have been suppressed, or have gone through an unbroken course, would certainly have taken place in those subjects which are otherwise favourable. The same may be said of the deafness of many gouty persons, in whom the humoral pathology represented the defect of hearing as the result of the gouty humour struck in, or lurking in the internal parts.

Deafness by diathesis we do not understand. M. Itard speaks of syphilitic and herpetic causes, as most eminent among virulent agents in producing deafness, and presently proceeds to unfold the mystery herein couched. Perusal of the chapter, which is not long, did not enable us to comprehend the subject more clearly; and as we are unwilling to misrepresent, we shall say no more about it, but hasten to the consideration of M. Itard's practice in relieving or curing the diseases of the auditory function.

The empirical method in which these affections have been treated has been long a subject of complaint; and we fear it will be impossible to convince our readers that this will be removed entirely by the researches of M. Itard. His method of combating the inflammatory and congestive states would be deemed in this country very inert, tardy, and, in some instances, injurious. His antiphlogistic measures are in general too inactive, and the effect of this is, that his *sequelæ*, as otorrhœa, caries, morbid effusions, &c. are very frequent and very important diseases. In the congestive and plethoric states, he is too fond of the *médecine expectante*, and seems to be totally ignorant of the powerful effects of long-continued gentle alvine evacuation. We likewise regret to observe, that he betrays a want of discrimination in the use of some of his remedial agents, and does not seem to appropriate them well to the kind of deafness or acoustic malady which he is about to treat. It becomes us, however, to say, that our author has bestowed the greatest attention on this part of his subject, and has proposed one or two methods of treatment, which, though not entirely original in principle, have the merit of considerable novelty and great ingenuity. Of this kind are his method of injecting into the eustachian tube and tympanal cavity, to remove mechanical obstructions, and his contrivances for increasing the intensity of the sonorous vibrations in cases of deafness, which depend on an imperfect sentient power.

Every one in this country knows that Sir A. Cooper is entitled to the merit of first practising that operation, which was originally proposed by Riolanus as a cure of congenital deafness, and afterwards by Cheselden, in various diseases of the tympanal membrane. The success of our ingenious countryman instantly brought into the field a crowd of imitative operators, who, fired by the most slavish love of irrational and misapplied operation, punctured the membrane in every possible case of deafness, and, when they found their expectations disappointed, blamed the operation in general for failing in cases in which it ought never to have been tried. It is melancholy to think how often this ingenious result of the combination of anatomical and mechanical science has been misapplied; whether the deafness depended on inflammation, or plethora, or congestion, when it ought to have been treated with general and local depletion, and counter-irritation;—or on morbid secretions, filling the tympanal cavity, when, if any attempt was to be made, it ought to have been their removal,—or a disease of the labyrinth, which was beyond the reach of art, still the membrane was punctured with the most sanguine hopes of success.

M. Itard has well limited the cases in which this operation is indicated; and, after a careful examination, has shown that it ought to be employed only in decided examples of permanent obstruction of the eustachian tube, whether that obstruction consist in tumour, stricture, or the adhesion of its parietes. If the obstruction depend on inflammatory swelling, this operation is unnecessary—and insufficient, as we shall show, if it depend on effusion of viscid mucus or coagulable lymph. In either case it is imprudent, as it brings discredit on the art, by the wanton and irrational employment of a very neat operation.

We have already alluded to the deafness which is occasioned by morbid secretions in the tympanal cavity. It seldom happens that the surgeon can boast of the uniform power of those means which have been supposed to be capable of exciting the absorbents; and, after these secretions have been deposited in the tympanum, it would appear that nothing short of mechanical force will remove them. M. Itard has felt, with ourselves, the defects of this part of acoustic surgery, and has taken a very direct and effectual means to remove them. When the usual remedies have been employed unavailingly, he has recourse to tepid injections into the tympanal cavity, in order to soften and remove the substances, which, by continuing in this situation, produce the defect in the power of hearing. This operation, which our author denominates immediate or direct medication of the internal ear (*tympanal cavity*), may be performed in three different modes; 1*st*, by an opening, spontaneous or artificial, into the mastoid cells; 2*d*, through the membrane of the tympanum; and, 3*dly*, through the eustachian tube.

The perforation of the mastoid process, which was recommended by Riolanus, was actually practised with success about the middle of the last century, by Dr Jasser, a Swedish physician, and not long afterwards by another Swede, Prof. Hagstroem. Although Valsalva had shown the possibility of injecting the tympanal cavity by the mastoid cells,—a point, which, we have already said, ought never to have been doubted,—yet Adolphus Murray thought it necessary to establish it by express researches; but ultimately concluded, that the operation founded on it, ought not to be attempted without very positive and powerful reasons. Our author, influenced certainly by the authority of this anatomist, and by the results of cases described subsequently by Arnemann and Himly, as well as by his own experience, especially in carious affections of the mastoid process, rejects this mode of medicating the tympanal cavity as at once useless and hazardous. He has not forgotten to mention the unfortunate instance of John Justin Berger, physician to the King of Denmark, whose death, in 1791, was attributed to the consequences of this operation, of which he had made trial on his own person.

A much safer operation is found in the second method of direct medication of the tympanal cavity, viz. injecting tepid water through a puncture or incision of the membrane. M. Itard, who was led to the idea of this operation by the circumstance of finding congestions and various morbid secretions in the tympanum of surd-mutes, informs us, that it is the only method of treatment which he has found successful in congenital deafness, but that he has been less fortunate with it in deafness coming on long after birth, or in adults. After various trials, he is satisfied that simple tepid water is the best and safest agent for removing these secretions. The injection may be repeated ten or twelve times daily, so as to use two pints of fluid. The patient experiences at first considerable pain, vertigo, and headach; and the hummings, with which this species of deafness is attended, are generally increased for a day or two; but after this period, when the ear becomes habituated to the impulse of the water, an amelioration is observed; and as the cavity comes to be cleared out, and the tube deobstructed, which is known by the water escaping by the throat, the patient gradually recovers his hearing. This method, however, is not entirely free from objection. In some patients, it produces great pain, without any adequate benefit; in other instances, it seems to render the organ more delicate and sensible, without making the hearing more distinct; and twice has M. Itard seen it followed by otitis, attended with much pain, and a reddish serous discharge, which, on disappearing, left the tympanal cavity more obstructed, and the deafness greater than formerly.

Circumstances of this description induced M. Itard to revive the original operation of Guyot, who, about a century ago, tried to inject the eustachian canal by a bent tube, which he introduced into his mouth. Guyot was not of the profession, but postmaster in the town of Versailles; and as his knowledge of the orifice, or even the existence of the eustachian tube, must have been derived from second-hand information, our author agrees with the historian of the Academy of Sciences in thinking, that he could only bathe the aperture with his injections. It is, in truth, anatomically certain, that he could not, by the mouth, reach the orifice of the tube, without drawing forward the palatine velum to prevent the uneasy sensations which result from touching this part of the throat; and we can scarcely suppose M. Guyot possessed even of this degree of information. It was certain that his deafness was relieved. We have not leisure to follow our author in his interesting history of the subsequent fate of this operation, in the successive hands of Cleland, Antony Petit, Douglas, and lastly, Wathen. It is sufficient if we notice shortly the method, which our author considers as the most proper and suitable for the purpose. The instruments requisite to perform the injection properly, are a syringe, a silver tube, an elastic gum tube, and a silver frontlet, to be employed as its name implies. We do not propose to detail the particular uses of each, or the precise mode in which they are to be employed. The success must depend on the anatomical skill and dexterity of the operator, and he must rely, in an eminent degree, on his habit of introducing it in the dead subject for success and facility in employing it in the living body. M. Itard fixes the frontlet first, then measures the distance between the superior alveolar margin and the basis of the uvula, which is nearly the same with that between the posterior commissure of the nostril and the guttural orifice of the eustachian canal. This measure is to be marked on the silver tube, which is then to be introduced into the nostril of the side corresponding to that tympanum which the surgeon wishes to inject. Its entrance into the canal, which is to be known only by the most consummate *tact* acquired by the frequent habit of introducing it, both in the dead and living body, will enable the operator to fix its other extremity immovably between the limbs of a *vis* or screw attached to the frontlet, and proceed to the adaptation of the syringe. All after this is simple and easy.

Though this mode of directing applications to the tympanal cavity is accomplished without division of parts or discharge of blood, it is neither free from pain nor danger. The introduction of the tube causes very uneasy sensations, both in the nostrils, and in the orifice of the canal. The approach of the fluid to the tympanal cavity is sometimes followed by giddiness, swimming eyes, and fainting, and sometimes acute pains extending from the ear through the head, for many hours. M. Itard, however, prefers this method of deobstructing the tympanum, because it is more anatomical, because it effects a more certain and complete detersion of the part, and because it is less likely to endanger the integrity of the membrane and the tympanal bones.

Such, in brief, are the means by which M. Itard proposes to rid the tympanal cavity of any substances which cannot otherwise be removed. To us they appear both rational and ingenious, and to show manifestly the skilful and courageous surgeon; and we think they ought to be generally known to all medical practitioners who are in the habit of treating acoustic maladies. Their adoption into general practice will depend very much on the kind and character of the patients, and especially on the individual anatomical skill and dexterity of the surgeon, and his ideas of responsibility on the general necessity and particular propriety of such operation. So satisfied are we indeed, of the utility of this operation, that we should be inclined to go a little farther than M. Itard has gone, in attempting to remove one of these mechanical obstacles to the healthy state of the function. We allude to the permanent obstruction of the eustachian tube, which is remedied only in a very imperfect manner by the puncture of the membrane. It is well known that this wound in many instance cicatrizes immediately, and thus defeats the purpose of the surgeon, or renders the operation once more necessary. The truth is, the remedy is only palliative and vicarious, and it is best to direct our curative measures against the disease itself. We can see no obstacle whatever, after puncturing the membrane, to the introduction of a flexible silver stilet through the whole extent of the eustachian tube, from its tympanal to its guttural orifice. The disease is in general precisely the same as a stricture of the urethra, or, more accurately, as the obstruction or stricture of the lacrymal canal. The auditory tube is not narrower or longer than the latter, and may certainly admit the same or similar means of treatment. In the dead subject, this operation may be performed with the greatest facility, and without injury to the tympanal bones; and we cannot discover any good reason, why a surgeon who knows well the connexion of the malleus with the membrane, and the direction of the tube, should not attempt in this manner to remove any obstruction in the eustachian tube of the living subject. The safest method would be, to employ first a small elastic, or catgut bougie, which, by gentle manipulation, might at length succeed in removing any viscid secretion, or distending gently the canal where it was unnaturally contracted. If this were found insufficient, we should recommend a small flexible silver stilet, or one of the metal employed for the flexible bougie, which would be sufficiently firm, to exercise the necessary impulse in most cases, even of adhesion. When the cavity of the canal is reopened, a portion of well oiled catgut might be left in it for a few hours, if the patient bear it without inconvenience; and when the surgeon is satisfied that the communication between the throat and tympanal cavity is complete, he may allow the opening in the membrane to heal, if possible;—if not, it will only form another, though rather incovenient channel of communication, between the external air and that contained in the tympanum.

When deafness depends on irremediable defect of conveying power, or on the anaesthetic state of the nerve, or, in short, on incurable disease of the labyrinth, little can be done by proper surgical or medical measures; but the intensity of the sonorous vibrations may be augmented to such a degree, that the comfort of the patient may be much improved. M. Itard has made some curious, and, we believe, beneficial researches, on the best means of accomplishing this purpose. He informs us, that the propagation of *vocal sounds* is much better accomplished by metals than by wood, which, according to the best acoustic experiments, is eminently endowed with the force of propagating sounds; and that silver, copper, and tinned iron, are preferable in this respect to the others. In ascertaining the best form for instruments of this kind, he was disappointed in the assistance which he had expected to derive from pure physical principles;—the parabolical figure, reputed the best, had no advantage over the conical or pyramidal tube. He has found, in general, that a spiral figure, similar to that of the cochlea, or, in short, such a disposition as imitated that of the cavities of the labyrinth, was by far the most eligible, especially in producing distinctness in the sounds conveyed. This object was likewise favoured by the insertion, at proper distances, of slips of gold-beater's leaf, in the manner of partitions. The difficulty of forming spiral or convoluted tubes of metal, however, led M. Itard to the employment of some of the univalve convoluted shells. By cutting off the apex of such a shell, so as to expose its cavity, and adapting to this a small curved metallic tube, of a diameter suited to that of the external auditory canal, a complete instrument is obtained, both for augmenting the intensity and the distinctness of the sonorous vibrations. If it be wished still to augment the intensity of these vibrations, a contrivance, denominated by M. Itard an artificial tympanum, or even an artificial helix, may be applied to the greater opening of the shell.

The subject of congenital deafness, and the education of surd-mutes, with which the second volume is concluded, is so far distinct and peculiar, that we must decline entering on it at present. For the same reason, we say nothing of our author's *acouometer*, which can be useful principally in cases of this description. We shall not offer any apology for the length or minuteness of this article, because, unless it had been both, it was impossible to do justice to the work which we have examined. All general criticism of a work of science must be in some measure erroneous; and anxiety to shun this error, has induced us to give a more detailed examination of the work of M. Itard than may be generally approved; and, while it is impossible to deny that M. Itard has composed a treatise which is not without merit as a work for consultation, and which must, to a certain extent, be the principal source from which the aurist can derive information, still its defects, both in arrangement, in pathology, and in practice, rendered it indispensably necessary to show wherein its errors consisted, and to state the reasons why they were to be accounted errors.

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## II.

1. *Recueil de Memoires de Chirurgie.* Par le Baron D. J. Larrey, Chirurgien en Chef de l'Hôpital de la Garde Royale, &c. &c. Paris, 1821. pp. 319.
2. *On the Use of Moxa as a Therapeutical Agent, by* Baron D. J. Larrey, *Surgeon in Chief to the Hôpital de la Garde Royale, &c. &c.* Translated from the French, with Notes and an Introduction, containing a History of the Substance by Robley Dunglison, Fellow of the Royal College of Surgeons, London, &c. &c. &c. London, printed for T. & G. Underwood, 1822. pp. 224.

The collection of Memoirs of which we propose to give an account, is the production of a very eminent military surgeon well known to the medical world. He is moreover the author of Memoirs on various branches of Medicine and Surgery, published in four volumes, in which is sketched rapidly the surgical history of those dire campaigns, undertaken to satisfy the ambition of Napoleon Buonaparte. The medico-military histories formerly published by Baron Larrey, had an interest in themselves independent of professional merit, which caused them to be much read, particularly in Britain, and acquired for their author a considerable degree of popularity. The volume now before us appears in a different dress; it has no claims to attract the merely curious reader, being a plain account of some pathological facts observed by Baron Larrey in the course of his practice at the Hospital of the Royal Guard. There is no longer talk of sieges and battles, and of those terrible events, which, by distracting the attention, prevent any critical examination of the professional part of the work. The romantic feeling with which the former writings of the author were perused, must now be laid aside, and the merits of the volume fairly discussed. We regret that the Baron should have been induced to collect and publish separately these Memoirs, and that he should have risked his well-earned fame, by descending once more into the arena, and entering, as it were, into competition with pathological and physiological writers; who, though they may be ill fitted to arrange the wounded of an army, on the day following an engagement, or be found quite incapable of amputating two hundred limbs in twenty-four hours (a feat performed, as report says, by Baron Larrey, after the battle of Borodino), are yet well skilled in the nicer branches of their profession, and in those researches to which we know military surgeons actively employed have rarely leisure to devote their attention.

In reviewing this work, we fear that we have not been uninfluenced by the recollection of the amiable qualities of its author,—his urbanity and politeness to strangers; his kindness and benevolence to the sick under his charge; and finally, the love of his profession exhibited in all his actions.

In the treatment of various diseases in France, there is employed a remedy, which, though not in general use in England, is yet sufficiently well known, and not unfrequently resorted to by the surgeon. We allude to the application of moxa, or, in other words, to the burning a small roll of cotton over a pained part; a very simple process, which any of our readers may see daily in the Royal Infirmary, or perhaps in most of the hospitals in Britain.

This method of applying fire to the human frame for medical purposes, is of vast antiquity, and borrowed, like many other discoveries and points of doctrine (which it is not now the fashion to avow), from the Orientalists, that is to say, from the Hindoos, Chinese, or Japanese. It is from the latter, we believe, that the mode of applying moxa was taken; their practice has been minutely described by Dr Kœmpfer, in his history of Japan, and in his other works. But the use of the moxa is by no means confined to these nations; for Mr Forster informs us,* that he suspects the practice to be prevalent in the Friendly Isles. Mr d'Arvieux assures us, that the Arabs apply fire even to the head,—a very dangerous experiment, and not likely to be imitated in this country.

Baron Larrey describes minutely, in the commencing memoir, the various instruments employed; the '*porte-moxa,*' adjusted and fit for use; the fragments of the '*porte-moxa*;' the Chinese moxa, and that in common use; and lastly, the brass or iron blowpipe, by means of which the flame is to be duly maintained. All these are represented in a plate attached to the work, followed by another, wherein the various parts of the body to which the moxa may be applied are, in imitation of the Japanese, very carefully noted. He enters very minutely into the detail of its application in various diseases, commencing with those of the eye, ear, nose and mouth, and proceeding next to the palsies, which the author gravely calls 'affections paralytiques du sytéme musculaire.' Next come organic diseases of the viscera in general; those of the chest; chronic catarrhs and phlegmasiæ; phthisis pulmonalis; chronic and organic diseases of the abdominal viscera, rachitis; and lastly, caries of the sacrum, ossa innominata, and femur.

The reader by this time must have discovered, that moxa is the grand hobby of our author; and his suspicions will amount to a conviction when he is informed, that the observations on this single remedy are extended over one hundred and sixty octavo pages.

It were to little purpose to follow our author through the whole of these observations on the moxa, or to investigate with him the various diseases in which this remedy may be employed. Moxa is considered by Baron Larrey, what cinchona was by Dr Heberden—good in many diseases, and bad in none.† But the Baron has not enumerated all the diseases in which he employs the moxa. We have seen him use it in aneurism of the aorta! which, though not inconsistent with the generalizing spirit of an enthusiast, must certainly create a little surprise in the cool conceptions of British surgeons. One reason is offered for the employment of moxa, which to us is incomprehensible; but fearful of error in so important a matter, we shall quote the author's precise words.

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* Observations on Physical Geography, &c. by J. R. Forster, p. 496.

† The Japanese themselves, who entertain such preposterous and barbarous notions of the value of this remedy, scarcely exceed our author's enthusiasm.

"This means, besides (viz. the use of moxa), has appeared to communicate to the parts a relative quantity of caloric, and also a volatile principle, very active, furnished by the cotton whilst in combustion. The excitement and irritation resulting from the combination of these two products, disengaged by insufflation," &c. &c. p. 7.

Now, these theories about excitement and irritation, and about the very active and volatile principle arising out of burning cotton, and propagating itself to the nerves (for such are the Baron's words), may seem to our author and his countrymen, exceedingly ingenious and correct. We hold them to be less rational than the notions of the semi-barbarous Japanese; for they only talk of occult vapours, which lie, as it were, "imprisoned within the body."

Our author next proceeds to describe the mode of cupping, which he employs, and which he strongly recommends. He prefers the abstraction of blood in this way to the application of leeches, and uses a scarificator, which seems rather to puncture than cut, and is mentioned by him under the title of "*une espece de flamme modifiée.*" With these two remedies, the moxa and cupping-glass, and scarificator, our author attacks the various diseases to which frail man is subject, and with such success, that many of the most intractable and hopeless morbid states of the human frame fall under that class, which is easily remedied by the moxa.

In page 20, we stumble on *neuralgie* or *tic doulourcux chronique*, arranged amongst the "*affections paralytiques du systéme musculaire.*" It is described as consisting in a chronic inflammatory swelling of the neurilema.

Now, this remedy (meaning the moxa), excites these organs, effects thus a salutary derivation of the morbid principle, and "reestablishes the course of the nervous fluid."

It is extremely probable that, in many cases of this intractable and distressing malady, the employment of moxa might supersede the use of the knife; affording a relief which, though temporary, may be renewed from time to time by a recurrence to so simple and easy a remedy. Very lately, as we are informed, the sulphate of kina has been employed with success in periodical attacks of neuralgia of the face. Our author objects to the use of nux vomica in palsies, and thinks that its employment in medicine ought to be proscribed.

In perusing this Memoir, we find that a majority of the more interesting cases have been already submitted to the public in the "*Campagnes,*" and more particularly in the 3d and 4th volumes. This is extraordinary in the author, who seems inclined to consider the present volume as forming the 5th of the work alluded to. The following case of destroyed sensibility in the arm, restored by the application of moxa, is interesting.

"I shall relate the case of a young soldier, in whom I observed a loss of sensibility only (une paralysie de la sensibilité animale seulement). The shoulder, all the external surface of the arm, fore-arm and right hand, had lost, in this young man, the power of sensation. The skin might be pinched or burnt without exciting the least pain; whilst the power of volition, in directing the movements of the extremity, remained perfect.

"This soldier had been struck by a sabre above the clavicle, and in the middle of the triangular space formed by the reunion of the humeral extremity of this bone and the acromion. The injury was very superficial, and scarcely to be perceived. Cupping-glasses were applied over the site of the small wound, already cicatrized; and three moxas, placed on the line of the affected nerves, restored sensibility to the whole extremity; and he was sent out of the hospital in a few weeks, perfectly cured."

At page 29, is related a case of intolerable pains in the large nerves of the arm cured by the same means. Three instances of amputation for a similar disease have been communicated to us; nor do we think that the moxa was used in any of them.

At page 39 we find him curing, by means of moxa, chronic affections of the head, idiopathic epilepsies, *hydrocephalus internus*, &c.; and he quotes the case of a young trumpeter of light horse, whose head, from being swelled to a great size by hydrocephalus, was afterwards reduced to a much smaller compass than natural! but this case also has been already published in the third volume of the "*Campagnes.*"

Our author's success in lumbar abscess, attended with carious vertebræ, ossa innominata, os sacrum, and in hip disease, seems to have been considerable; but we have no mode of judging of the real efficacy of the treatment, because the unsuccessful cases are not noticed. In Britain, most cases of these diseases are sooner or later fatal, and more particularly of lumbar abscess, whether treated according to Mr Abernethy's plan, or left to themselves. The abscesses formed during the progress of this disease, are occasionally opened by Baron Larrey in a manner which we do not suppose has been as yet employed in Britain. This is by plunging into the abscess a straight sharp-pointed bistoury, heated to a white heat. In other cases, he employs a long straight bistoury, which he plunges through and through the abscess, and introduces a seton on this being withdrawn; but it is evident, that no rational hopes can be entertained of a recovery, unless the caries of the bones shall have been arrested in its progress.

The disease of the joint, known in Britain by the name of hip disease, is denominated by Baron Larrey, after Chaussier, "*Femoro-coxalgie,*" and forms the subject of very extended observations. It were easy to show, that most of the author's pathological views of this disease are erroneous, and his explanations inadmissible. He attributes, for example, the lengthening of the limb in the early stages of the disease, to a "rupture in one of the points of insertion of the inter-articular ligament, and to the palsy of the surrounding muscles;" and explains, agreeably to this theory, the effects which are said to arise from the application of a triangular-shaped heated iron over the joint, recommended and used by Professor Rust of Vienna. The effects of one application of this powerful remedy are said to be, an immediate return of the limb to its natural length. But in all this there must be some mistake; for the lengthening of the limb has, in Britain, uniformly seemed to arise from an obliquity of the pelvis, occasioned by the sufferer having employed for some time the sound leg only. And we know of a very interesting and beautiful case, in which dissection showed the disease to be confined to the greater trochanter, (the joint being perfectly sound and untouched); and yet the affected limb was most remarkably lengthened in appearance, and continued so till the patient's death. *

It would be an act of injustice were we to neglect directing our reader's attention to the excellent practice occasionally employed by Baron Larrey. We were forcibly struck by this during a perusal of the second Memoir, which treats of Nostalgia, a disease of frequent occurrence amongst the mercenary troops in the pay of France, and chiefly amongst the Swiss Guards.

The effects of nostalgia on the cerebral system are thus detailed.

"The surface of the hemispheres of the brain in a state of intense inflammation, with suppurating points, varying in extent and situation. The substance of the brain thickened, and its arteries filled with black and liquid blood; the lungs similarly filled with blood; the cavities of the heart dilated beyond measure, and full of coagula of black blood; the stomach and intestines distended with air; their mucous membrane injected, but offering no appearances of true inflammation. Thus the individuals die, not, as some * believe, of gastro-enteritis, but from the organic lesion of the brain." p. 168.

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* The *femur* exhibiting this remarkable fact is now in the Anatomical Museum at Chatham.

The treatment arising out of this pathological view of the disease is, "to empty the vessels of the head by opening the jugular vein and temporal artery; to apply ice or iced water to the head; emollient semi-baths; cupping-glasses applied over the *hypochondria*, epigastrium, and dorsal regions, followed by camphorated embrocations, antispasmodic drinks. Finally, exercise and music ought not to be omitted."

Whilst we entirely coincide with the judicious measures contained in the above detail of treatment, and think that many diseases of the head would be thereby cured, we humbly submit, that in nostalgia, the dismissal of the patient from the service, if a soldier, or leave granted to return home, would, in most instances, be attended with a speedy and radical cure.

There is a source of error in this and the preceding classes of disease, to which the Baron is constantly exposed, without, perhaps, his being aware of it;—we allude to the impositions of the soldiery, amongst which class he chiefly practises. These men, from a variety of causes, and sometimes even from mere whim and a love of mischief, are apt to feign diseases, which they do occasionally with considerable dexterity,—a trick very likely to succeed with Baron Larrey, who, being one of the best of men, † will naturally be one of the most credulous.

Our author commences his Third Memoir, entitled, "*Notice sur les Proprietés de la Membrane Iris,*" by observing, that irritations of the system of nerves of organic life, have, directly or indirectly, an influence, more or less marked, over those of animal life (*vie de relation*), whilst lesions, exclusively affecting the latter, have scarcely any effect in disturbing the functions of the former, or of the organs they supply. This proposition may or may not be true; for we know so little of the nerves of organic life, or, in other terms, of the great sympathetic system of nerves—so little of the physiology of these nerves, that some tolerably good observers have raised doubts whether or not they really deserve that name. At all events, the assertion is much too general, and derived from circumstances much too uncertain, to be admitted as a positive or undeniable fact.

Our author next proceeds to examine the sympathy supposed to exist between the retina and iris; and concludes, from a few anomalous cases, that the contractile property of the iris is independent of the nervous influence of the retina, or optic nerve, "and is derived from its peculiar structure, and from the ciliary nerves, derived chiefly from the lenticular ganglion belonging to the great sympathetic."

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* Broussais, *Editor.*

† Such was the expression used by Napoleon Buonaparte in speaking of this gentleman.

We shall perhaps, at some future period, show that this view of the lenticular, spheno-palatine, and submaxillary ganglions, viz. of their forming a part of the great sympathetic system, is exceedingly forced, and is, with regard to one of them, disproved anatomically. Moreover, it is a refinement in dissection, invented by the present French School, to support some of the theoretical views of the nervous system supposed to belong to Bichat. We shall here only observe, that the lenticular ganglion no more belongs to the great sympathetic nerve, than does the brachial plexus of nerves; it is simply in communication with it, and that only occasionally. Moreover, so feeble is the connexion, so delicate the communicating branch of nerve, that we believe few anatomists have ever seen or been able to trace it. So much for the anatomical part of the Baron's theory. Our author offers a number of cases, none of which appear to us conclusive. He seems to think that the motions of the iris are partly voluntary, and he considers its muscularity sufficiently demonstrated by anatomical preparations in the possession of Prochaska, in which that eminent anatomist endeavours to show, that the structure of the radiating and circular vessels of the iris is the same as the elementary fibre of muscles, obeying volition. Our author concludes the Memoir with the following passage, which we quote as a specimen of his mode of reasoning:—

"Finally, we think that the afflux of blood into these linear vessels is occasioned by galvanic, vital excitations, unknown in their nature, but arising, without doubt, from the encephalic nerves, for the organs of locomotion, and from those of the ganglions for the muscular organs of organic life."

The Fourth Memoir, which treats of Wounded Intestines and their mode of cure, would not merit notice but for the extraordinary treatment of a case, in which the surgeon, who sewed up an intestine punctured by a small sword, returned the protruding gut into the cavity of the abdomen, and, along with it, the ends of the black thread used for the ligature. The Baron saw the case a few days afterwards (the lapse of time is not specified), and, having a peculiar dislike to healing any wound by the first intention, and, indeed, fully resolved that no wound coming under his care should be permitted ever to heal in that way, he boldly cut asunder the adhesions already formed in the external wound, and gave issue to a quantity of blood collected between the muscles and intestines. The symptoms, as might be expected, were by no means relieved in consequence of these operations, though they yielded at last to the application of the Baron's favourite remedy, cupping, applied "in parallel series, from the superior to the inferior part of the abdomen, following the course of the nervous fluid from the *pole positive* to the *pole negative.*" Fortunately for the patient, in spite of these manipulations, the intestines adhered together and healed. The end of the thread with which the intestines had been sewed appeared in the external wound and was extracted, and the individual recovered.

Our English readers, who have been trained in the approved principles of British surgery, will quickly perceive the errors committed in the treatment of this case, and will see that the fortunate termination was not to be ascribed to the correct pathological views of the surgeon. It is to be regretted, indeed, that the doctrines of adhesion, and the advantages to be derived from the knowledge of this process in the treatment of wounds, are either unknown or overlooked by most of our Continental brethren; and it is not uncommon to hear them speak of the process of reunion and healing wounds in the same terms in which our own surgeons spoke about thirty or forty years ago, who, with an unreasonable fondness for the process of incarnation, as they termed it, in all wounds however different, not unfrequently interfered, in a very injudicious manner, with the process by which nature proceeded most speedily to repair injuries.

Our readers, no doubt, will be pleased on reading the title of the next and last Memoir, which is "*Sur la Rupture du Col du Femur.*" He will naturally anticipate much information,—and in this will be grievously disappointed. To the analysis of this Memoir we have given considerable attention; for we hardly imagined that fifty octavo pages on fractures of the femur, and more particularly of the neck of the femur, could have proceeded from the pen of so able a surgeon as Baron Larrey, without containing a single new fact or interesting case; but the most important part of the history of this fracture has not been touched on, and the treatment recommended is ordinary and usual. Our author sets out with an indiscriminating anathema against the extension of the limb in fractures of the neck of the femur.

"Whatever be the mode of extension for fracture of the neck of the femur, it is not only useless, but generally pernicious; useless, because the displacement of the fragments cannot extend beyond the thickness of these fragments;"—" hurtful, particularly when permanent," &c.

But surely every surgeon will allow, that if there be considerable displacement of the bones, which may, and occasionally does happen (though not frequently) their extension, to a certain extent will be required to put the fractured extremities in apposition. Our author makes some good remarks on the various modes of treating these fractures. He observes (p. 286),—

" The want of success, and the grievous accidents occurring during the treatment by harsh and ill managed extension, had already induced some celebrated surgeons of the last age to do away with the use of machinery, and to abandon the fractured limb to simple position. Thus, for example, Sabatier caused the patient to be laid on a good pailliasse, and placed the fractured limb betwixt two long pillows or bolsters, which were fixed and made to approach each other by cords. Mursinna, surgeon in chief to the Prussian armies, placed the fractured limb so, that the leg was bent on the thigh, and the latter on the *pelvis,* by means of a bandage, which maintained the limb in this state of flexion. In these present times, permanent extension has again come into fashion, and forms a leading article in the *Dictionnaire des Sciences Medicales.* Thus have they gone from one extreme to the other."

Baron Larrey objects to the plan proposed by Mursinna, on the following grounds:—" Supposing that the limb, in a state of flexion, remain perfectly immovable, the callus formed agreeably to this disposition of the parts, will prevent future extension; the limb will become much shortened, and finally useless, by reason of its contracted state." An interesting note is added, informing the reader that there is in the possession of M. Ribes a *femur*, the superior fragment of which is implanted into the spungy substance of the trochanter, and in a relative situation exactly analogous to that in which the thigh is placed according to the plan proposed by Mursinna. During life, the thigh was bent on the pelvis. We have seen an anatomical preparation in which something like this must have happened; but nothing could be learned regarding its history.

Our readers will no doubt be surprised to find the theories of Hunter, on the general question of Adhesion and Union by the first intention, called in question by Baron Larrey. This gentleman thinks that the union of bone is effected in all cases by the extension of blood-vessels from one fractured extremity to the other. " Every thing proves the contrary to the generally received opinion, that the separation of bone is brought about by the vessels belonging to the injured pieces of bone, and not by the external or internal investing membranes, nor by other intermediate substances." To this we have only to remark, that no one ever supposed that the union of fractured bones was effected by a glutinous or gelatinous substance only, but that ultimately this intermediate substance became vascular, and finally osseous.

The apparatus employed by Baron Larrey in fractures of the femur is sufficiently simple. It consists in compresses in place of splints, eighteen-tailed bandages, small cushions of every form, wrapping-cloths, &c. The machinery employed by Baron Boyer differs considerably from the above; whilst occasionally, in other very celebrated hospitals in Paris, position and very simple bandaging only are recommended. In England, many deem all attempts to unite fracture of the neck of the femur unavailing; and it is in a great measure owing to these extraordinary differences of opinion which exist regarding the pathology of this fracture, that means of cure so widely differing from each other have been recommended.

The present state of opinions regarding the possibility of uniting fractures at the neck of the *femur*, is unfavourable to uniform and efficient practical measures; some very eminent surgeons deeming it impossible; others asserting such cures to be very frequent, and, when not happening to be entirely attributable to the surgeon, and to the neglect of proper apparatus for maintaining the fractured bones in apposition; whilst others, as Baron Larrey, never call into doubt the possibility of healing fractures at the neck of the femur in the ordinary way, and indeed do not seem to be aware that any difficulty exists. We would attempt to investigate more fully the causes of this difference of opinion, and to show how they were to be explained or reconciled; but besides that we considered the subject, and expressed our opinion at some length, when examining the Essays of Sir Astley Cooper, our limits forbid. While, therefore, we refer our readers to that article, * we must take our leave of the Baron, and the fracture of the neck of the thigh-bone, with the hope of resuming it at a more convenient season. If, in the present critical analysis of Baron Larrey's work, we have not been liberal in compliments, this has arisen solely out of the volume itself, and cannot be supposed to affect the real merits of the author's preceding works, or his character as a distinguished operative surgeon. But there is a compliment paid to Baron Larrey in the preceding pages, to which we beg leave to call his attention. We have implicitly believed all his cases and statements, offering only explanations, differing indeed from the Baron's, but founded, we trust, on a sounder pathology. We are perfectly aware that, in the present instance, this extreme confidence in the integrity and veracity of the writer is well placed, though ample experience forbids us extending the same feeling towards the authors of some late works remarkable for bold and unwarranted assertions.

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* Vol. XVI. p. 300, et seq.

We cannot take a final leave of Baron Larrey, without adverting to the excellent translation of the Memoir on Moxa by Mr Dunglison. We may congratulate the author, that this part of his work has been introduced to the English practitioners under such auspices. Mr Dunglison, who has translated the Memoir, not simply well, but in a masterly and interesting manner, does not, however, prove a slavish or devoted admirer of his author; and he has exercised a judicious and liberal spirit of remark on the merits and defects of the book. He does not attempt to conceal or disguise the weak points of the worthy author, but candidly brings forward the remedy to the notice of his countrymen, that it may be fairly tried, and justly appreciated: and that no means may be omitted, which have been said to be useful in such untractable diseases as consumption, diseased spine, and lumbar abscess. Mr D. has not merely translated the Memoir of Baron Larrey. One-third of the volume is occupied in an interesting and instructive history of the original substance, to which this name was applied among the Chinese and Japanese in the presence of strangers. We cannot recommend the little work of Mr Dunglison in too strong terms to the notice of the profession.

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## III.

*A Manual of the Climate and Diseases of Tropical Countries; in which a Practical View of the Statistical Pathology, and of the History and Treatment of the Diseases of those Countries is attempted to be given: Calculated chiefly as a Guide to the Young Medical Practitioner on his first resorting to those Countries.* By COLIN CHISHOLM, M. D. F. R. S. Honorary Member de la Societé de Physique et d'Histoire Naturelle de Geneva; Member of the Helvetic Society for the Promotion of Science of Switzerland; of the Philosophical, Medical, and Natural Societies of New York and Philadelphia; and late Inspector-General of Ordnance Hospitals in the West Indies, &c. &c. &c. Burgess & Hill, London. 1822.

THIS is a treatise almost purely practical, by a physician who is known to have spent a considerable portion of a long and active life in those regions, the diseases of which he professes to consider. Though written in a style completely unassuming, and what might be considered as actually careless and irregular, yet it communicates a great proportion of interesting and not unimportant information, and may safely be recommended as a useful manual to those of our professional brethren, who are destined to contend with the insalubrious agents which are unceasingly desolating our tropical possessions. There are, however, some circumstances relating to the manner in which the work is composed, of which it is necessary to apprise our readers, insomuch as this information will explain, somewhat, the method in which we shall examine the Manual of Dr Chisholm.

Most of our readers, who know any thing of the contagion and yellow fever controversies, are doubtless aware, that our author entertains peculiar opinions on these subjects, and that, about twenty-seven years ago, he published a very full and elaborate investigation of the truth of the doctrines commonly taught on the nature and origin of the disease, vulgarly, and, as he contends, erroneously named yellow fever. On the merits of this work, and the justice of the principles therein promulgated, we have at present no intention of offering any opinion. It has been now a sufficient time before the tribunal of the public to have its merits decided, and to render any opinion of ours, if not unnecessary, at least unseasonable; and we shall not therefore make any reference to it which we can easily avoid. We may, however, remind our readers, that the researches of Dr Chisholm, on the characteristic nature of true yellow fever, and its difference from those febrile remittents, the formation of which depends on the local peculiarities of particular districts, led him to enter pretty fully into the consideration of many subjects, which are necessarily common to the whole tribe of tropical diseases. It is on this account that a very considerable proportion of the present work is a republication, abridged or modified, sometimes little altered, of the Essay on the Malignant Pestilential Fever. Of the three parts into which Dr Chisholm has divided his Manual, the first, on the Statistical Pathology of the West Indies, consists chiefly of an abridgment of the introduction of his first work, and of the third part, which is found in the beginning of the second volume. Much of the second part of the Manual,—for example, what relates to the natural history of the remittent yellow fever, the origin of intermittent fever and dysentery, necessarily coincides with the observations which our author had occasion to make in speaking of the malignant pestilential fever; while the third part of the present work is an avowed republication (p. 173), of his most useful and certain matter on that formidable malady. In such circumstances, we may be excused from entering into a very minute or elaborate examination of the present work, while we confine our observations to the new matter which it contains, and take such a view of our author's performance as may be beneficial to our readers.

Dr Chisholm, we have already had occasion to remark, employs three general heads under which to convey his observations and instructions. In the first, he gives a view of the statistical pathology of tropical countries in general, and the West Indies in particular; notices the morbific agents which depend on the geographical and topographical peculiarities of these regions; and considers the best means of obviating their effects, whether on large bodies of troops or seamen, or on individuals; and of applying the general principles of medical police in the most effectual manner, to prevent the generation and diffusion of diseases which are always dangerous,—often totally unmanageable. Our readers are aware, that a good deal has been said on the propriety of seasoning the European constitution to the equatorial climate, and thereby rendering it less susceptible of being affected by those agents to which the tropical fevers are generally ascribed. It cannot be denied that there is considerable justice in the opinion; but we are not certain that it may not occasionally be carried to an extreme length. The third chapter of our author's first part, which indeed is the third chapter of part 3d. vol. ii. of the Essay, transcribed and abridged, is almost entirely devoted to this subject; and he has taken considerable pains to show the necessity of instituting various evacuations, with the view of assimilating the European constitution to the climate. We have room only for the didactic part of our author's observations.

"On reaching the northern tropic or N. lat. 23°, every stranger to the torrid zone should be bled to an extent proportioned to his age and strength; and a pill of five grains of calomel, given at night, and a saline purgative the following morning. The bleeding should be repeated, if necessary, once before landing; but the calomel and salts should be frequently resorted to; and this will be more necessary, should there be a disposition to constipation. I have already observed, that, on approaching the tropics, a considerable tendency to congestion is perceived. This greatly increases on a further advance, more especially hepatic congestion, which, in fact, is the most serious consequence to be apprehended on entering the tropics. Nothing more effectually obviates this than moderate bleeding, and mercurial and saline purgatives. To assist this course, the diet should be made as cooling as possible. Perspiration being the great means employed by nature to carry off the superfluous heat, every thing which tends to restrain it should be avoided; dilution is, therefore, in every respect, highly necessary, and it is evident, that, with this view, water is the fluid best calculated; for whilst it promotes perspiration, it necessarily prevents determinations and congestions. Should any addition be deemed necessary, it should be such as may render the water more pleasant, and give it a greater tendency to increase alvine evacuation and perspiration. These effects cannot be promoted by the copious commixture of ardent spirits, so freely indulged in by soldiers and sailors;—nor can the intention of dilution be fulfilled by the large quantities of wine and fermented liquors indulged in to an equally destructive excess, by a great majority of men in the higher walks of life. When the foregoing course is begun, it should be further seconded by daily cold bathing, either by immersion or affusion. No rule can be more easily adopted and pursued on ship-board, so that any direction for carrying it into effect seems quite unnecessary. It is, I hope, equally unnecessary to direct the attention of commanding officers of troops, in transports, to the indispensable objects of sweetening the ship, by scrubbing and inspersion, fumigating and ventilating. During the whole voyage these should be assiduously employed; but certainly more so, on entering the hot latitudes. Other precautions are equally necessary to preserve health, to prepare for change of climate, and to prevent or destroy infection. I shall notice only the dividing the men into watches according to their number; maintaining due discipline; using hammocks instead of berths; exposing these and the blankets on deck during the day; not permitting the use of beds or mattresses; encouraging cheerfulness and innocent mirth; and enforcing such exercise as the situation admits, such as dancing more especially." pp. 12, 13.

We willingly admit the general correctness and propriety of these measures; but it appears to us, that the object in view may be attained by a more moderate and less complicated course. We cannot be expected to speak with the same decision as our author, and other tropical practitioners, on the reality of difference in vascular action between the European and the native West Indian constitution, whether Negro, Mixed, or Creolian, or the relative susceptibility of each to climatic maladies. But it must be obvious, that, where many Europeans, as almost all females, and individuals both of this and other countries under certain circumstances, escape the morbid effects of the West Indian atmosphere, there must be, in the persons of those who are its more easy prey, peculiarities which ought to be well and closely studied, in the construction of any system of rules to secure them against the insalubrious influence of agents, which do not act indiscriminately or universally. Now, without attempting to philosophize very profoundly on the subject, or to be very acute in discovering that which is perhaps obvious enough, we would observe, that we deem it now to be generally established by the testimony of many, and the experience of all, that the main causes of disease to European constitutions are to be found either in the unceasing moisture and evaporation of the wet season,—or in the sudden transitions during the dry season from insufferable meridian heat to damp and chilling nocturnal cold,—and in the greater morbid susceptibility which is generated in the constitutions of soldiers, sailors, or settlers, by irregularity and imprudence in diet, clothing, and unseasonable performance of professional duties. In the moist season, for instance, which commences, as we learn from our author, about the beginning of June, and continues, without much intermission, except in August or September, till the end of November, intermittent, remittent, and yellow remittent fevers, hepatic and dysenteric affections, are most prevalent and unmanageable.* From the month of December, when the atmosphere becomes much drier, but is chilled by boisterous northerly winds till the conclusion of February, the West India epidemic constitution assumes an inflammatory type; and pleuritic, catarrhal, or rheumatic affections, are the prevailing forms of disease.† To such maladies, however, it will be remembered, all the inhabitants of the West India islands are not, without exception, or invariably liable; and a considerable proportion, who are more prudent and cautious, or better protected against the noxious elements of the tropical atmosphere, enjoy an immunity almost perfect from these destructive complaints. We do not offer these observations as particularly new or unknown; but they appear to us to point out, most clearly, several important practical lessons in obviating the insalubrity of tropical climates. It is evident, that diseases of this nature, and in such circumstances, must be much more successfully combated by a preventive than a remedial course; and that it is rather their formation than their cure, which is the great object of the medical attendant to investigate. The course which they run is in general so rapid, that remedies, when employed, have not time to operate; and the physician must often be summoned, when his best and most active efforts are totally useless. It is more by the use of suitable clothing and diet, we conceive, with such administration of cathartic medicine as will insure the healthy state of the alimentary function, than by the employment of copious venesection or calomel, that the European constitution must be most safely and effectually seasoned to the climate; and, if it were always practicable to prevent the men from being exposed, whether necessarily or unnecessarily, to the vicissitudes of the dry, or the noxious evaporation of the moist season, we cannot see why there should not be quite as few of these violent febrile remittents in the West Indies, as in any other healthy tropical country. Although, however, the preliminary measures of Dr Chisholm appear to us more depleting and complicated than the circumstances warrant, we must do him the justice to say, that his directions for preserving the health of individuals, or of bodies of men, are exceedingly judicious, and, if generally adopted, would certainly contribute, in an eminent degree, to diminish the sickliness and mortality of our tropical possessions.

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* Manual, Chap. I. p. 4.; and Chap. IV. p. 18.

† Manual, Chap. IV. p. 20.; and Chap. XI. p. 101.

The second part of our author's Treatise is devoted to the consideration of those diseases which prevail in the equatorial regions. These appear to us to be referable to two great divisions, 1*st*, those which are peculiar to the tropical countries, and are never found beyond them; and, 2*d*, those which are common to the tropical, with other regions of the habitable globe.

I. There are but few diseases which are peculiar to the tropical regions, and these, if we except such as are the result of an animal or morbid poison, are generally of a febrile nature. Of this description are the yellow remittent fever, intermittent fever generally complicated, tropical dysentery, hepatic dysentery, and, perhaps, the malignant pestilential fever of Dr Chisholm. The yellow remittent fever has been known by our author to arise from one of three sources; 1*st*, marshes, the exhalations from which, under an equatorial sun, produce this disease in its most tremendous form; 2*d*, damp, unventilated places, stagnant water, thick woods, &c. the vapours issuing from which may be considered as the cause of a less violent form of the disease; 3*d*, the decomposition of wine, which, escaping in considerable quantity from casks on shipboard, and undergoing in these latitudes, by incessant motion, an ultimate or elementary resolution, may be accounted a cause of the disease in a degree of violence sometimes equal to that which is the immediate product of marshy vapours. The symptoms which characterize this disease are so generally known, that we may be excused from quoting our author's description, which is faithful and accurate on the whole. We have not space here to enter into the examination of the correctness of our author's opinions on the causes and nature of this species of fever, which, indeed, as we have already stated, are essentially the same as those announced in his larger work. It is sufficient to say, that his distinctions appear to have the merit of reconciling most easily the differences of opinion on the origin and nature of what has been named yellow fever. It appears to be now believed among several eminent practitioners, that, among the fevers of the torrid zone, which, in consequence of the occurrence of this phenomenon, are so denominated, it is possible to establish a distinction at once from the manner in which they are respectively generated, and also from the symptoms by which they are characterized. Of these, one species, which arises from the ordinary causes of remittent fever, rendered infinitely more energetic and virulent by the greater heat and humidity of the equatorial atmosphere, never ceases to affect the exposed during the wet season, and is endemial, but not contagious,—at least is not in ordinary circumstances communicated or propagated by contagion. This is the marsh-remittent, or yellow fever, of which we have been already speaking. But, according to Dr Chisholm, there is another species of fever, which is exceedingly similar to this in symptoms, but totally different in its origin and ordinary mode of propagation. The presence of this disease does not depend on moist and putrid effluvia, or on elementary decomposition of animal and vegetable substances, but, according to our author, on the same morbid poison which produces the typhoid fevers of Europe. When this agent is either generated or conveyed in the persons or clothes of human beings, in goods, or in ships, to the tropical regions, where it is influenced by the heat, either alone or combined with humidity, or where, as Dr C. seems to think, it may be grafted on the yellow remittent fever of the torrid zone, * then a new disease is formed, which is neither the remittent fever of the tropics, nor the continued fever of colder countries, but is what is popularly named the yellow fever. Our author, who seems to agree with Dr Moseley and Dr Jackson, in deeming this yellow appearance rather an accidental than a necessary or invariable part of this fever, contends that the denomination is improper; and in consideration of its origin, nature and phenomena, he describes it under the appellation of *malignant pestilential fever.* The diagnostic and pathognomonic circumstances on which he founds this distinction, are reprinted pretty closely from his early work; and it is therefore unnecessary for us to pay much attention to them here. The most obvious are, its origin not from marshy situations, and, consequently, its epidemic, not endemial character; its propagation by contagion; † its being attended almost universally not so much with yellowness, as with a uniform dirty yellow colour of the skin, and latterly, a petecchial eruption; the frequent suppuration or occasional gangrene of the scrotum and testicles, and the biliary ducts being uniformly found pervious after death. On this subject, the uncertain nature of medical evidence, and the discordant testimony of those who have personally witnessed the disease, will show the wisdom of abstaining from any decided opinion; and we think that the most natural result of the whole controversy is, the conviction of the utter impossibility of ascertaining at present,—whether the yellow fever be really the same with the tropical marsh-remittent, and is extinguished in the persons of those whom it attacks,—or is a different malady, and may be propagated to others in close and frequent intercourse with the diseased. In this state of indecision, we would recommend to our brethren who are fixed in the West India Islands and similar situations, to avail themselves of every opportunity of comparing the observations of Dr Chisholm with those which occur to themselves.

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* Manual, pp. 167—188, Part 5.

† Manual, pp. 190—201.

The dysentery of the tropics has occupied the undivided attention of several accurate observers; and in our account of the interesting remarks of Dr Ballingall, and the useful monograph of Mr Bampfield, we brought the pathology and treatment of this disease pretty fully under review. This will supersede the necessity of resuming the subject at present; and indeed the short account, of which the plan of Dr Chisholm's work admits, contains only one circumstance, the importance of which demands particular notice. This is the existence of a very obstinate and generally fatal form of tropical dysentery, which depends, according to Dr Chisholm, on a morbid state of the liver and small intestines, and which he has therefore designated hepatic dysentery. We extract, as closely as our limits allow, our author's own account.

" The symptoms which principally distinguish hepatic dysentery, are a fixed pain at the pit of the stomach, a constant headache, and frequent dejections, at the commencement by no means peculiar. The two first, although apparently not characteristic, are nevertheless, to be particularly noticed, more especially if the disease prevails epidemically. In other respects, it does not seem to differ from the idiopathic or common dysentry. It is, therefore, of the highest importance, when the two symptoms I have mentioned appear at the commencement of dysentery, to ascertain the local peculiarities of the patient's place of residence—that is, whether the patient has resided, and contracted the disease in the immediate vicinity of marshes, and what are the diseases which have most frequently occurred in the situation—whether there is any epidemic at the time. If the situation is marshy, and the epidemics have been, or are, remittent and intermittent fevers, and hepatic complaints;—then, the pain at the pit of the stomach and headache, accompanied by a disposition to frequent alvine dejection, should be considered as indicating hepatic dysentery. Towards the fatal period, which, in the worst form of hepatic dysentery, comes on with an overwhelming rapidity, the sudden and unexpected supervention of a general coldness of the surface, with partial cold clammy sweats, an almost total cessation of pulse, an excessive sinking of the spirits, and a discharge from the bowels, composed of slimy brown substance, floating in a fluid like bloody water, and having a fetor of intolerable offensiveness, mark the irremediable progress the disease has made. A less unfavourable form presents some symptoms less equivocal, and which more early discover its nature. In the commencement, and for three or four days, the symptoms are those usually observed in dysentery; but at the end of that time, together with the pain at the pit of the stomach and the headache, a considerable anxiety at the præcordia, and a sensation as of a continued pressure in the right hypochondrium, with frequent stools, composed of a fluid like the washings of raw meat, are perceived. These symptoms should be particularly noticed, and deemed as truly characteristic of the seat of the disease being the liver. It will be happy for the patient, and creditable to the practitioner, if they are so; and if they are made the regulating principle of the treatment. If they are neglected, and the fatal ones permitted to come on, nothing can be useful; and the progress of the disease to death is most rapid, indeed so much so, that from the appearance of these signs, death takes place in six, ten, or, at the most, twenty-four hours.

"Dissection has thrown the clearest light on this species of dysentery. The liver of all the viscera is found the most diseased—inflamed, enlarged, partially suppurated, or in some portions sphacelated, or in consistence like rotten cork;—the whole of the intestinal canal more or less inflamed—but more especially the smaller intestines;—their coats, in many places, very considerably thickened, and in others sphacelated.

"The mode of treatment I adopted in this obscure disease, after I became acquainted with its nature, was the following. After bleeding once or twice, if the pulse indicated the repetition, a vomit of tartarized antimony, or of what I found generally preferable, sulphate of zinc, and a sufficient purge of castor oil, the following pills were given.—℞ submur. hydrarg. gr. iij. pulv. ipecac. gr. iv. opii gr. ss. mucilag. q. s. ft. pilulæ duæ. The two were given every three hours during the twenty-four. Emollient glysters, such as the following were administered thrice in the day—℞ amyl. solut. ℥vi. tinct. opii. gtt. lx. ad. c. pulv. ipecac. gr. viij. m. ft. enema. If the danger was imminent, and the symptoms increased in urgency, the dose of calomel was augmented in such a manner as to excite ptyalism as quickly as possible. When this took place, danger ceased, and the patient soon became convalescent. I first began to use this mode of treatment in the year 1786, and have most successfully continued it ever since. It is now more generally known, and every judicious practitioner employs it." pp. 58–60.

II. The inhabitants of intertropical countries suffer not only from the diseases to which these regions are peculiarly and exclusively liable;—they are exposed also to many of the maladies which are found in more temperate situations. Of this description are the several inflammatory complaints, cholera, colic, rheumatism, worms, and various spasmodic affections. The information which Dr Chisholm has furnished on these subjects is what constitutes nearly the new matter of the present work; and although it is unfortunately not so well arranged as we should wish it to be, yet we must confess that the practical information, especially as to treatment, is very valuable indeed. It is a general and important pathological fact, that diseases of this kind are considerably modified by the geographical and physical peculiarities of the places in which they occur; and our author has given us examples of this modification in hepatitis, worms, pneumonia, and phthisis, and in the phrenitic attack which is the result of exposure to solar heat.

In the chapter on Hepatitis, the observations on the anomalous form of this disease will be found the most novel and interesting. Its peculiarities seem to consist in the oppressed state of the respiration, and disorder of cutaneous and mucous secretion, without obvious change in the circulation at first, and with a sudden rise, after the second day, from 80 to 120 or 140, and then, after the 6th day, as sudden a depression previous to the fatal event. The pathological change, which, on the authority of Dr C., gives rise to these symptoms, seems to be merely a simple enlargement or general swelling of the entire organ, without any change in its tissue or organization,—without any approach to suppuration or gangrene.

The observations of Dr C. on Cholera, Dry-belly-ache, and Chorea, do not require any particular notice from us. The modification which pulmonary diseases undergo within the tropics, is sufficiently interesting. It might be supposed, from what we observe in cold latitudes, that diseases of this nature would be either very rare or very mild; yet it is remarkable, that they form a proportion, by no means inconsiderable, of the severe and unmanageable maladies.

"Among the tropical endemics, pneumonia occupies a distinguished place during the winter and spring months. It is, therefore, a disease of the dry season, and is brought on by exposure to the northerly winds, which prevail during that season. It is more frequent on the windward side of the West India islands; and, during the dry season, from the constant agency of the cause, it is often epidemic in those districts. On the leeward side of the islands, it is also met with; but it is not there distinguished by such intensity of symptoms. (Part I. ch. iv. subdiv. 3.) Pneumonia, within the tropics, is marked by the same symptoms as in temperate climates;—the only difference observed, is in their greater violence, and their greater and more constant disposition to terminate in sphacelus or abscess." pp. 104, 105.

Such symptoms, of course, demand the usual remedies with more energy, and to a greater extent, than in other situations. A very common result of pulmonary inflammation is consumption,—which, within the tropics, is totally unconnected with the strumous diathesis, and uniformly runs its course with great rapidity. This effect our author ascribes to the north winds of the West India Islands, which, like the bise and mistral (maestro) of Southern Europe, produce, between the dry months of December and March, a degree of cold exceedingly pernicious to the animal frame. (pp. 108, 109.)

" When purulent expectoration, laborious respiration, pain in the left side, emaciation, hectic flushings, and other symptoms of impending, or actually formed phthisis, are observed, there is no safety by remaining in the climate. It must be immediately changed, or measures must be adopted which, in their effect, may in some degree be equivalent, otherwise death is inevitable. A sea-voyage and a temperate or cold climate, present the only, or at least, the best chance of life."—" An active bustling occupation of time, with exposure to what may be called and deemed hardships, such as often occur in military service, during an active campaign, or in maritime service of any kind, have sometimes produced a most wonderful change in a constitution broken down by phthisis. I have known instances of officers in both services recover their health by such seemingly inconsistent means. One thing is most certain, that confinement to the atmosphere of a room, or even house, is most highly prejudicial; it renders the person infinitely more susceptible of the impression of cold, and thereby tends to augment the evil which it is supposed calculated to remedy." pp. 110-112.

These considerations lead our author to recommend what has been called the tonic treatment of consumption. (p. 113.)

Extreme solar heat is known to produce either a very formidable disease, or to destroy the individual immediately. " Coup de Soleil, frequently occurs in the hotter months, and seems evidently a species of apoplexy, the cause of which is the intense heat of the sun striking on the head, when the person is stationary, the head uncovered, or not sufficiently protected, and the air little agitated by wind. It more frequently happens in those situations which are screened from the prevailing wind, and in which the rays of the sun seem to converge as in a focus."—" The person suddenly falls down in a state of stupor and insensibility, and, if assistance is not immediately procured, seldom recovers, but in the course of a very short time expires. Dissection has established the fact, that the disease is, as I have already said, either sanguineous or serous apoplexy; when the former, the brain is gorged with blood, extravasated from numerous ruptured vessels; when the latter, the membranes of the brain bear strongly marked signs of intense inflammation, but the brain itself is seen in a manner floating in serous fluid, and sometimes exhibits a very singular appearance. It is considerably diminished in bulk, is of a whitish yellow colour, and, on being handled, communicates the renitent or elastic feel, experienced on pressing between the fingers moderately stuffed leather. All its convolutions are most distinctly marked by deep furrows, and its blood-vessels are scarcely perceptible. On cutting into its substance, it possesses a more than usual degree of resistance. The ventricles are filled with serous fluid. In short, the appearance of the brain in this species of coup de soleil, or serous apoplexy, is such as would induce the belief, that all the stadia of the most active inflammation had so rapidly run their course, as to leave an almost undefinable space between its commencement and its termination, in an overwhelming effusion; so that we feel inclined to be impressed with the opinion, that what are denominated the sanguineous and serous forms of the disease are truly only varieties,—varieties occasioned merely by a difference in the impelling force, which in the one gives time for the development of the steps of the disease:—in the other, hurries the whole, as it were, into one, in which life is extinguished."—"The sanguineous apoplexy, consequent upon coup de soleil, is, I believe, the only species that admits of any thing like cure. The serous is always fatal." pp. 117–118.

This information will easily show what kind of remedies ought to be employed. "Cold applications to the head are particularly efficacious, as an auxiliary to the bleeding and purging. The hair should be cut off, so as directly to expose the whole head to the cold. The best application is a solution of the muriate of ammonia, or of nitrate of potass in water, absorbed by a soft towel, with which the head should be covered. This should be frequently renewed. A remedy, precisely the same in principle, but differing in the mode of application, is often resorted to by the negroes, for relieving the sanguineous apoplexy with great success. Among the negro nurses, by whom alone it is applied, some air of mystery is thrown over it, probably to impress the simple minds of their patients more forcibly, and probably too, because its effects may seem to their own apprehension, bordering on the miraculous. After bleeding and purging, a wide-mouthed bottle is filled with the coldest water that can be procured; the mouth of the bottle is then covered with a piece of fine calico, sufficiently thick, however, to prevent the water from percolating readily through, and securely tied on. Thus prepared, the mouth of the bottle is applied to different parts of the forehead for about an hour. Large globules of air pass into the bottle, considered by the operator and patient, as the heat transpiring from the brain, by means of the remedy. Whether it is owing to the negro race, possessing less predisposition to the disease, and thereby suffering less congestion in the brain from coup de soleil, when it occurs among them, I shall not take upon me to say, but it is certain that recovery frequently takes place, without further means, except a few doses of some simple purgatives. But the principal, and indeed, only effectual means to take off the pressure on the brain, are, in the first instance, bleeding from the temporal arteries,—cupping and general bleeding, if necessary, followed by active purging: all external applications should be considered as only useful auxiliaries. It is very rare, that a person who has once suffered under this malady, ever recovers the perfect use of his physical and mental faculties; they both ever remain greatly paralysed, so as to render him an *imbecil* for the remainder of his life, and always, when exposed to the direct rays of the sun, extremely liable to apoplectic seizure. The eyes are at all times possessed of a peculiar wildness, and all his actions are remarked by absence and eccentricity, sometimes by fatuity." pp. 119, 120.

Tetanus, which, in common with other spasmodic diseases, has given rise to a sufficient quantity of crude and irrational hypothesis, occupies a considerable portion of our author's attention: but he very unwisely, in our opinion, allows himself to be biassed by the common love of speculating too extensively on the proximate cause, as it has been named, of the tetanic symptoms. In a work avowedly practical, observations of this kind, unless they tend very directly indeed to improve the treatment, are seldom of much use; and we regret to observe, that this is too much the character of our author's remarks on tetanus. We must take this opportunity of observing, that the phenomena of tetanus, and the natural history of its formation, demonstrate clearly that it is a disease, or rather a collection of unhealthy actions, so various in origin, that it is utterly inconsistent with correct reasoning to attempt to refer it uniformly to a single pathological cause; and the efforts which have been lately made to prove that it is necessarily connected with an inflamed or even vascular state of the spinal chord or its nerves, serve only, in the eyes of the practical and practised observer, to prove how little such pathologists attend to the uniform and necessary constituents of the morbid condition. The authorities and examples which Dr C. has, with many other writers, quoted, prove indeed that various affections of the brain, cerebellum, or even the spinal chord, produce, in the muscular system, those actions and conditions which are called tetanus; but they also show that the tetanic symptoms are merely a single set of many morbid phenomena, to which these conditions of the nervous central mass give rise. Those, for example, who are conversant with the phenomena of spasmodic diseases, and the pathological conditions which are connected with them, know that tetanic symptoms occur not only after wounds and the application of extreme cold or heat, but in many other conditions of the system in which it is difficult, if not impossible, to recognise any similarity or analogy. Tetanic symptoms are observed occasionally in fevers, both intermittent and continued, in inflammation of the brain or its membranes sometimes, after injuries of the head, and very frequently in consequence of the reception of various poisonous substances into any part of the alimentary canal. It is worthy of remark likewise, that the puncture of a nerve or of a muscle is not invariably followed by tetanic symptoms, but that they more frequently succeed to contused or punctured wounds of tissues, in which nerves have not been discovered. The laceration or puncture of a tendon, for instance, an injury done to an aponeurosis, an extensive rupture with bruise of ligaments, have all been known to be followed by tetanus, without any ascertained violence being offered to nerves. We are perfectly aware, that many pathologists whom we respect, will deem these inferences somewhat heterodox, and will contend that they are at variance with all the established doctrines; but we must answer, that we are not aware that they are at variance with the phenomena observed in the living body, or those which dissection has uniformly shown after death. We would, if this were the place, show, that it is not so much the method of mere *induction*, as the method of *analysis* which must be employed to illustrate the pathology of a disease such as tetanus. It is not simply the accumulation of many facts that will elicit the truth, but the application of the separating and discriminating spirit;—the distinguishing of the essential from the accessory phenomena—the uniform from the occasional, and those which are esteemed causes, from those which are truly effects, or simultaneous results of the same general cause. We speak with a particular reference to the appearances which have been found after death in those cases which have been submitted to examination; and we can assert, from personal observation, that, in many instances, the vascularity which has been thought to account for the irregular actions, is merely accidental, while, in others, it was obviously the effect, and not the cause, of the violent and permanent contractions; and that the same appearances are frequently observed in cases, in which death has taken place without any tetanic affection, and therefore ought not to be regarded as peculiar to that disease. While, in short, we admit, that several maladies incident to the brain, spinal chord, or their envelopes, are attended with tetanic symptoms, we must be permitted to assert, that tetanus is not uniformly the result of inflammation or congestion even of these parts, and often exists without any marked proofs of either.

This book is very incorrectly printed, and abounds with typographical errors,—a circumstance which, we believe, is to be ascribed to its not being printed under the author's immediate inspection. We trust this serious inconvenience will be removed in a future edition.

The perusal of this work has, among other effects, awakened in our minds some gloomy reflections on the futility of partial medical theory, and left a melancholy impression of the vanity of applying, with too little reserve, the principles of the physical sciences to explain the operation of various external agents on the animal body. At the time when Dr Chisholm first published his interesting Essay, the pneumatic chemistry was cultivated with the utmost zeal and success. The delightful explanation of many unknown or unintelligible processes, which the brilliant discoveries of Lavoisier, Priestley, and Cavendish furnished, led the medical world to indulge in the hope, that, however difficult it might still be to accomplish cures, the manner in which the human body became diseased could be no longer a secret. The philosophy of gases, in short, was prized as a golden key to unlock all those inscrutable mysteries, in which human ailments and their formation had been hitherto involved. It was not to be expected that Dr Chisholm, sober and rational as he ever has been, should be wholly exempt from this general spirit of explanation; and he accordingly reasoned much and acutely on oxygen and azote, on air deoxygenated, and on the gaseous oxyd of azote as the generator of morbid contagion and contagious fevers,—and on the hydrocarbonates of stagnant water and decomposed wine. He seemed to think, indeed, that chemical affinity and attraction furnished the long-sought explanation of the classical enigma of the Lernean hydra. In the present work, however, which, as we have shown, closely resembles the former in the subjects which it comprehends, and in the manner in which they are considered, not a trace or hint of these explanations is to be found; and the whole doctrine of gaseous agents has passed away like a fleeting vision of the night. We say not this in the malicious spirit of triumphant criticism; for Dr Chisholm is by no means the individual towards whom we could indulge in such a feeling. We speak this neither in pity nor in anger, but in that sad and heartless temper, which the disappointment of philosophic expectations, and the chilling of scientific enthusiasm, are apt to beget. We would express our feelings by speaking of the lesson which such changes inculcate; we would moralize on the folly of premature and partial conclusions in medicine, on the incompatibility of chemical and vital laws, and on the wisdom of close and unwearied observation of the manner in which the fabric of man becomes weak and languid and feverish;—why the firmness and fresh complexion of health are exchanged for the convulsive shaking and sallow aspect of the ague;—why the breath of the crowded ship, or jail, the steam of the marsh, or the vapour of the jungle, should bid the colour fly from the lips, and dampen the lustre of the eye. We would say more, but will not; nor is it our wish to repress those energies which, though sometimes improperly directed, are nevertheless the offspring of a liberal and laudable enthusiasm. We conclude with a warm recommendation of the work to the attention of our young professional friends, whose situation places them among the diseases of which it treats, and with a sincere hope that the labours of its venerable author will be useful to them in the exercise of their profession.

## IV.

*The Seats and Causes of Diseases, investigated by Anatomy; containing a great variety of Dissections, and accompanied with Remarks.* By John Baptist Morgagni, Chief Professor of Anatomy, and President of the University of Padua. Abridged, and elucidated with copious Notes. By William Cooke, Member of the Royal College of Surgeons, London, and one of the Secretaries to the Hunterian Society. In 2 vols. 8vo. London, 1822.

It is an eminent example of the worth of correct and faithful observation, that time has not only taken nothing from the value of the Epistles of Giovanni Battista Morgagni, but that they are beginning daily to be more highly appreciated. Had the Professor of Padua spent his days and nights in composing a great theoretical work on Medicine,—had he laboured to establish some peculiar theory, which he imagined would be triumphant over the wreck of time, it were possible that he might still be admired for the beauty of his language, and the appropriate character of his observations; but he must have compromised the eternal durability of reputation which the utility of his observations has acquired, and which is daily increasing, with the progressive improvement of medical science. Boerhaave in Holland, and Baglivi in Italy, who flourished not long before the time of Morgagni,* both sought to enlighten the schools, and purchase celebrity by ingenious theories on the nature of disease, which certainly enjoyed, in unison with the spirit of the day, a very considerable share of popularity. The rigidity of the solid, the morbid lentor, and the acid and alkali of the fluids, were however destined to give place to vascular constriction and spasm; and the meningeal oscillations, cerebral fluid, and moving fibres of the Roman physician have long ago ceased to be numbered among the doctrines necessary to distinguish and treat disease. That part of Cullen which consists of observation and description, will never perish, and will never cease to be valued while nature is consistent, and continues to be studied by physicians; but the speculative reasonings, on which the strange perversity of human approbation laid the first foundations of his celebrity, are now beginning to glide into that obscurity, which, sooner or later, awaits the creations of fancy when substituted for the realities of nature. It is the peculiar merit of Morgagni, that he has formed a collection of records of disease, copied in the most faithful manner from the dead subject, without regard to opinion or speculative principles. The arrangement even which he has adopted, and which has sometimes been blamed as erroneous, ought indeed to be deemed an eminent instance of the correct views of the author; for if he had employed an arrangement which involved theoretical principles or premature doctrines, it is difficult to say how much it might have influenced the spirit in which he observed and described. It was fortunate for his own reputation, and for the interest of true science, that he chose the less splendid, but not less difficult task of following closely the course of nature; and his unrivalled diligence in collecting, and sagacity in observing, together with his matchless opportunities, enabled him to amass a collection of histories of disease, which no anatomist in any other European University could parallel, and which, after a period of nearly eighty years, is still the most perfect history of the kind.

Notwithstanding all these manifest advantages, however, this distinguished work long continued to be but imperfectly studied; and, though generally known to the profession, its contents were examined and its merits appreciated by a small proportion of readers; and it has been regarded rather as a very learned work, which might be spoken of and occasionally consulted, than as a book to be read, or studied, or remembered.

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* Boerhaave was born in 1668, and died in 1738. Baglivi was born in 1668, and died in 1706. Morgagni was born in 1681, and died in 1771.

That this is not misrepresentation, might be easily shown by the general history of pathology, and the character of the pathological works which have been published since that time. In no country, except England, did the researches of Morgagni appear to be appreciated, and the spirit of his writings imbibed. In France, though two of its most eminent physicians * edited the first edition, not Italian, yet he appears to have been known only to a few; and it is only within the last twenty years, during which pathological anatomy has been cultivated with assiduity in that country, that the dissections of the great Italian are attracting the attention which they merited. In Germany, where every thing is submitted to the human intellect, Morgagni was not long in being studied; and the works of Voigtel, Conradi, Meckel, and many of less note, show how much morbid anatomy is cultivated; but there is perhaps no country where its influence on practical medicine is less seen. The transalpine Peninsula seems even at this moment to have almost forgotten that Morgagni was its native. There, the love of speculation and doctrine has absorbed the attention, and occupied the ingenuity of all. This will not cause wonder, when it is remembered how difficult it is to relinquish the facility of hypothesis for the slow and patient course of observation,—how much self-denial is requisite to resist the attractions of popular taste,—what moral fortitude is necessary to cultivate studies, in which there are few to value and not many to applaud, —and how little a work not suited to ephemeral taste or preestablished opinion, is understood or appreciated.

Not much unlike seems to have been the state of the human mind as to our art, when the researches of Morgagni were published. The value of his observations could not then be generally understood: and, unless to readers who had, to a certain extent, similar opportunities of examining the nature and effects of morbid action on the organs of the human body, the descriptions of Morgagni must have been altogether or nearly unintelligible. Some of his facts would, and actually did appear questionable; some inconsistent, and some even inexplicable, till similar circumstances produced similar cases, which might explain and illustrate the labours of the great original. We do not even pretend to arrogate for our countrymen any pre-eminence in thus doing justice to the merits of a diligent foreigner; though we have the vanity to think, that the spirit of British medicine, founded, as it then was beginning to be, on observation and the inductive method, was more accordant with the pathographical and anatomical method of studying disease. It is cer-

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* Senac and Tissot.

tain, that the method of teaching in London since the time of the two Hunters, and that which, after the short-lived example of Dr John Gregory, Dr Cullen * more completely followed at Edinburgh, has been at all times conducted with a reference to the light thrown on disease by dissection; and to those, at least, whom eminence raised to instruct others, the Epistles of Morgagni, and their pathological information, were not unknown. It may be doubted, however, whether they were in such general and familiar use, as they ought to be, with the great body of the medical profession even in this country; and it is not difficult to perceive, that, to the greater number of practitioners, several causes concur to render the writings of Morgagni, in their present condition, very nearly a sealed book.

The great size of the work in its original form, which is certainly sufficient to deter readers whose zeal and diligence are not extraordinary, will appear a sufficiently obvious obstacle in the way of its being generally read; and as books, of the contents of which it is requisite to know something, are daily multiplying, to the neglect of some of our older and not less deserving authors, the operation of this obstacle is daily increasing. We fear, likewise, that the circumstance of its being written in an ancient language, no longer spoken, has not contributed, in these latter days at least, to render the Italian pathologist perfectly familiar to English readers. It is true, that this difficulty was early removed by Dr Alexander, whose translation has been long known to the medical world. But this work, in common with the original, is liable to an objection, which must always operate very powerfully in preventing it from being universally accessible. We allude to the scarcity of copies, and the expense at which they are generally procured. It is essentially and principally to the student, while he is studying clinical and practical medicine, that the writings of Morgagni must be useful; and it is precisely from this order of readers that they are in some measure kept, by the circumstances already mentioned. There is not, indeed, at present, any individual work on special pathology, as it may be named, which can, within a moderate expense, be useful to the student,

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* "I cannot dismiss this subject without remarking, that the dissection of morbid bodies is chiefly valuable upon account of its leading us to discover the proximate causes of diseases: and the great and valuable work of the illustrious Morgagni is properly entitled *De sedibus et* CAUSIS. It may well seem surprising, then, that Lieutaud should find the whole proximate causes *atra caligine mersas*; and that he should never have thought of applying his dissections towards the ascertaining at least some of these." *Vide* Cullen's Preface, p. 29. Edit. 1812; also, First Lines, *passim.*

except the Morbid Anatomy of Dr Baillie. But even this work, with all its excellencies, can be viewed as an introduction only to the science of pathology, and a beginning of that extensive pursuit, to which the rational physician must devote himself as the chief business of his life. When the student has acquired the general and preliminary information contained in the "Morbid Anatomy," he finds it requisite to proceed to more minute and particular inquiries; and he naturally searches for some work which may exhibit to him those individual and original delineations of disease, which are necessary to fill up the outlines previously derived from general description. He must, in short, have a special pathology, and become familiar with the facts on which the special pathology is founded. He will naturally turn to Morgagni; but the causes to which we have adverted, and, what is still more important, economy of time,—a possession so valuable in the education of a physician,—render the close study of this work, or even its frequent consultation, a matter of some difficulty. In such circumstances, any attempt to abridge the labour of the student, to render the means of information more accessible, or, in short, to facilitate in any mode his professional pursuits, must be regarded as a very laudable object; and it is some praise to say, that the manner, in which the work designated at the beginning of this article, is executed, promises to accomplish every thing which the translator could wish. We are, indeed, disposed to think the work of Mr Cooke the most valuable accession which has been made to the library, not only of the student, but the practitioner, since the publication of Dr Baillie's Morbid Anatomy. Mr Cooke has done every thing that abridgment and condensation, without affecting perspicuity, and good arrangement without totally changing the character of his author, could accomplish; and we cannot doubt that his translation will eminently contribute to promote the study of pathology, and a more intimate knowledge of the writings of Morgagni in this country. The merit of Mr Cooke, and the advantages which his translation is calculated to afford to the English reader, will appear more clearly in a short comparative glance of the relation which his work bears to the original.

Whoever is acquainted with the Epistles of Morgagni, is aware that they consist of cases and dissections collected partly from Bonetus, partly from the posthumous papers of Valsalva, but chiefly from his own observation or that of his friends, elucidated by occasional remarks of the author;—and whoever has consulted them, must know that the whole work is divided into Five Books, in the three first of which are treated respectively the diseased changes occurring in the head and neck, chest and abdomen. The fourth comprehends the dissimilar subjects of morbid changes observed in febrile diseases; tumours of various kinds; the diseases requiring surgical treatment, as wounds, fractures, dislocations; gout, and articular pains; syphilis, and effects induced by poisons; while the fifth and last book was intended as a supplement to the former, where more extended or correct observation had shown that they were erroneous or defective. On this arrangement, we are inclined to think, that the three first parts were as judicious, perhaps, as the scope of the author admitted; nor could it have been easy to employ another, without involving hypothetical principles, which might have essentially diminished the merit of the work. The arrangement of the fourth and fifth books, we must admit, is decidedly vicious; but the errors thus committed were necessarily connected with the plan of the work, and the manner in which its materials were collected. Every classification of surgical diseases must be to a certain extent arbitrary, unless in regard to those which are the immediate effects of injury and violence; and the theory of the day will not unfrequently convert into general affections, maladies which were originally regarded as local; while, in some diseases, as syphilis, the impossibility of esteeming them, in every case, either local or general affections exclusively, must be obvious. We state these points not to defend the arrangement of Morgagni's fourth book, but to excuse it; and to show that, in the existing circumstances, it was not easy to make it other than it is. On the fifth book we deem it superfluous to make any remark, as defects must occur in the works of every author, perhaps most frequently in those which are most valuable; and any attempt to supply these must be commended, and received with gratitude.

These evils, which we have thus endeavoured to excuse, certainly diminish considerably the value of Morgagni's work for general use and consultation; and we can assert from experience, that it is only after long practice and familiarity, that it is possible to peruse the work in a beneficial manner, and so as not to abuse those short intervals of leisure, which the medical practitioner can spare from his more active pursuits. It will be found that the manner, in which Mr Cooke has attempted to obviate or remove them, is judicious, and, as we think, effectual. He has divided his entire work into five chapters, the two first of which are made to correspond as nearly as possible with the two first books of the original, in treating respectively of the morbid changes occurring in the head and chest. The chapters are subdivided into sections, which correspond with the individual epistles of Morgagni; and the concluding section of each of these two chapters, is occupied with the subject of injuries and wounds of the head and chest, which are transferred to this part from the fourth book of the original, where they were treated by Morgagni. In the translation of Mr Cooke, we find the third book of Morgagni divided into the two subjects of diseases of the organs concerned in digestion, appropriated to the third chapter, with a concluding section on injuries and wounds of the abdomen;—and diseases of the urinary and genital organs, considered in the fourth. In these chapters Mr Cooke appears to us to have rendered the arrangement as perfect, at least for the purpose of communicating information, as such arrangement could be made. By transferring the accidental injuries and wounds of the cavities, or their containing parts to the respective chapters, in which the primary morbid changes are considered, the pathographical history of these regions is rendered more complete, a separate chapter is superseded, and a greater degree of unity is observed. The last chapter is perhaps the least fortunate in the choice of the subjects, which it is made to embrace; but we can easily perceive, as Mr Cooke has himself remarked, that though they have no great affinity with each other, yet they have perhaps less with any of the previous subjects, and therefore may, without much impropriety, be grouped together as residuary articles. The chapter treats of the various subjects of morbid changes occurring in fever, tumors, diseases and injuries of the bones and joints, strangulation, and poisoning. The subordinate arrangement of the observations, cases and dissections, is well managed; and all superfluous or indifferent matter is retrenched, in order to make room for the distinct and important information. The manner in which the work is translated, merits great applause; the language is good and correct, without being affected; the style is perspicuous without diffuseness; and, what is of infinite importance in a work purely of science, all unnecessary ornament is carefully shunned. The peculiar manner of the original is well preserved, and the simple antiquity of description which every one familiar with Morgagni must have remarked in his narratives of cases, is, on the whole, well sustained. We have indeed great pleasure in thus meeting with an opportunity of speaking favourably of the style of a medical work,—an event which is particularly rare at present.

We must not omit to observe, that Mr Cooke has rendered many of his sections more valuable, by the addition of notes, numerous and judicious. Of these, some relate to the improved views of modern pathologists, some to corrections or additions to the observations of his original, a few are explanatory, and some are of a mixed character. They are so much diffused, that particular enumeration is unnecessary. In the chapter on diseases of the head, we find Mr Cooke has not omitted the researches of MM. Serres, Abercrombie, Esquirol, and Rostan, whom, however, he regularly calls M. Rostal; in that on diseases of the thoracic organs, MM. Portal, Bayle, Laennec, and Corvisart; in that on abdominal and intestinal affections, Drs Monro, Pemberton, and Baron; Mr Clarke in the section on affections of the female generative system; besides occasional cases from personal observation, or that of his friends.

In conclusion, this work, independent of its general utility, will, we conceive, be particularly suited to two orders of medical readers. It must, in the first place, be one of the most valuable works, we repeat, which the student of pathology can possess. Its form and compass are such, that he may easily, and without misapplication of time, not only read it, but almost commit its substance to memory, after becoming moderately well acquainted with healthy anatomy. It will be an inestimable companion to the clinical student, whether at the bedside of the suffering individual, or witnessing in the dissecting room the appearances after death. The second order of readers to whom we think this book particularly calculated, embraces all those of our professional brethren whom local situation, or the incessant drudgery of business, must in a great measure preclude, not merely from reading, but even consulting, such a book as Morgagni. To such, while it is difficult or irksome to evolve the leaves of a mighty folio or quarto, it will be a matter of comparative facility to look over the pages of this well printed octavo, the execution of which is, in every respect, calculated to invite perusal. Lastly, to all medical readers of every rank and kind, this work will be found not unserviceable; and we trust, that its perusal will only confirm the opinion which we have now delivered.

# PART III.

## MEDICAL INTELLIGENCE.

### *A Mode of Cure of the Effects of the Bite of a Mad Dog, used in the Ukraine.*

When Mr Marochetti, an operator in the Hospital at Moscow, was in the Ukraine in 1813, in one day fifteen persons applied to him for cure, having been bitten by a mad dog. Whilst he was preparing the remedies, a deputation of several old men made its appearance, to request him to allow a peasant to treat them, a man who had for some years past enjoyed a great reputation for the prevention of Hydrophobia, and of whose success Dr Marochetti had already heard much.

He consented to their request under these conditions:—First, that he (Mr Marochetti) should be present at every thing done by the peasant:—secondly, in order that he might be fully convinced, that the dog was really mad, he, Mr Marochetti, should select one of the patients, who should only be treated according to the medical course usually held in estimation. A girl of six years old was chosen for this purpose.

The peasant gave to his fourteen patients a strong " Decoct. " of the " Summit. " and " Fl. Genistæ luteæ Tinctoriæ " (about a pound and a half daily), and examined twice a day under the tongues, where, as he stated, small knots containing the poison of the madness must form themselves. As soon as these small knots actually appeared, which Mr Marochetti himself saw, they were opened, and cauterized with a red hot needle, after which the patient gargled with the decoction of the " Genista. " The result of this treatment was, that all of them (of whom only two, the last bitten, did not show these knots) were dismissed cured at the end of six weeks, during which time they drank this decoction. But the little girl, who had been treated according to the usual methods, was seized with hydrophobic accidents on the seventh day, and was dead in eight hours after they first took place. The persons dismissed were seen three years afterwards by Mr Marochetti, and they were all sound and well.

Five years after this circumstance (in 1818), Mr Marochetti had a new opportunity in Podolia of confirming this important discovery. The treatment of twenty-six persons, who had been bitten by a mad dog, was confided to him; nine were men, eleven women, and six children. He gave them at once a decoction of the "Genista," and a diligent examination of their tongues gave the following result: five men, all the women, and three children, had the small knots already mentioned; those most bitten on the third day, others on the fifth, seventh, and ninth, and one woman, who had been bitten but very superficially in the leg, only on the twenty-first day. The other seven also, who showed no small knots, drank the "Decoctum Genistæ" six weeks, and all the patients recovered.

In consequence of these observations, Mr Marochetti believes, that the hydrophobic poison, after remaining a short time in the wound, fixes itself for a certain time under the tongue, at the openings of the ducts of the "submaxillary glands," which are at each side of the tongue-string, and there forms those small knots, in which may be felt with a probe a fluctuating fluid, which is the hydrophobic poison. The usual time of their appearance seems to be within the third and ninth day after the bite; and if they are not opened within the first twenty-four hours after their formation, the poison is reabsorbed into the body, and the patient is lost beyond power of cure.

For this reason, Mr Marochetti recommends, that such patients should be examined under the tongue immediately, which should be continued for six weeks, during which time they should take daily one pound and a half of the "Decoct. Genist." (or four times a day the powder, one drachm "pro dosi.") If the knots do not appear in this time, no madness is to be apprehended; but, as soon as they appear, they should be opened with a lancet, and then cauterized; and the patient should gargle assiduously with the above-mentioned decoction.

We hasten to communicate to our readers this important discovery (which we borrow from the Petersburgh Miscellaneous Treatises in "The Realm of Medical Science for 1821"), which certainly deserves the full attention of all medical practitioners, and which, if confirmed by experience, may have the most beneficial results.

*Translated from an Article in the Berlin*
*"State Gazette," No. 20, of the 14th Feb.* 1822.

Since the above statement appeared in the Berlin State Gazette, an official report, made to the Prussian Government, and quoted in a subsequent number of that newspaper, represents, that knots similar to those described by Mr Marochetti were found under the tongue of a mad dog in Westphalia the last spring.

*Medical Men are anxiously solicited to set on foot inquiries and experiments in order to put Mr Marochetti's statement to the proof. It may be well worth inquiring also, whether the cure, if such it is, is not effected by opening and cauterizing the knots, without the decoction of the Broom having any part in it.*

*In the suggestion of trials of the remedy thus described, nothing can be less intended than interference with excision and actual cautery when practicable, which it would be highly imprudent to neglect, at any rate as far as the present treatment of the bite of the mad dog is ascertained.*

In Russia, the wolves often go mad in winter. An English physician of eminence knew an instance of ten persons dying in the same village of hydrophobia, all bitten by the same wolf.

## *Extracts from a Letter by a Physician in London, to Dr Andrew Duncan Junior, Professor of Medicine.*

### 1. *Repetition of one of the supposed conclusive Experiments of John Hunter, to determine the Question of the Organs of Absorption.*

It is one of the numerous instances of the indolence, or indifference to truth, or perhaps, on the present occasion, of the prejudice of mankind, that no Englishman has been urged to repeat the very frequently quoted experiment by which the great John Hunter has been generally believed to have decided the question of the organs of absorption, although *Magendie*, confessedly one of the most expert operators in physiology, has often, during the course of many past years, publickly exhibited experiments, demonstrating results quite opposite to those of our illustrious countryman. The celebrated French physiologist has reported, and, at public lectures, performed scores of experiments on live animals, showing that injections do not immediately pass into the lacteals from the intestines, or from cavities into the lymphatic veins, but that they directly pass into the red veins. In the instance of the absorption of chyle only, according to Magendie, is there any evidence of absorption by open mouths of vessels called lacteals, originating in cavities; and here the lacteals perform *absorption of chyle only*. Their function is confined to this fluid. Whatever other fluids are presented, they are all excluded by the lacteals, but are found in the blood of the contiguous red veins. Accordingly musk, assafœtida, indigo, saffron, &c. were found in the venous blood, but not a particle in the lacteals, lymphatics, or thoracic duct. On the other hand, more than forty years ago, in the presence of professional men, similar experiments were performed by Hunter, showing, as was believed, that these, and other strong smelling and coloured substances, were absorbed by the lacteals, and totally excluded from the red veins. Magendie has very reasonably accounted for the failure of venous absorption in Hunter's experiments, but he has not accounted for the supposed taking place of lacteal absorption by this experimenter. The subject is at issue of further trials. At length a very able anatomical teacher, in the presence of an Englishman, one of Magendie's pupils, has lately repeated the experiment on a live dog, with an injection of indigo and starch, into a tied up portion of the gut. As this trial will be repeated and detailed more minutely and accurately, probably by the operator, no more will be said at present, than that it was in favour of Magendie, as none of the coloured fluid entered the lacteals; but an optical deception was discovered which may probably assist, if not explain, the report of Hunter.

### 2. *Matter of Farcy and Glanders identical Contagion, and producing similar Contagious Matter in the Human Subject by Inoculation.*

Several cases have been mentioned in the foreign Journals, showing the connexion between the diseases of farcy and glanders in horses, and a disease produced by the matter of them in the human body; but the accounts were neither well authenticated, nor detailed in a satisfactory manner. In London, some years ago, a veterinary surgeon contracted a disease from a farcy horse, with ulceration in the part of the arm infected, and what are called farcy buds extending up the limb. Of this disease he was supposed to have nearly recovered, but relapsing, he soon afterwards died. Lately, a patient offered himself at one of our hospitals with a sore arm, as he said, from a wound, and the touching the leg of a farcied horse. This man is still here ill, but I do not know the particular state of his health. From the matter of his ulcerated arm an ass was inoculated in the leg. The effect was a diseased leg, supposed to be the farcy; for, in some days further, symptoms of glanders appeared, of which disease the animal died. On dissection, among other effects was ulceration of the septum narium, as in other cases of that disease.

### *Extract Letter from William E. E. Conwell, Esq., of the East India Company's Medical Service on the Madras Establishment, addressed to the Court of Directors, under date the 6th April* 1822.

"Many years since, my attention was directed to the seeds of the croton tiglium. Mr Ainslie's work in 1813 developed their known properties up to that period; but, dissatisfied with the form of administering this medicine, I prepared an oil from the seeds which I have successfully prescribed for several years, and can now recommend it to the public, as the most singularly powerful cathartic we possess, one drop being generally found a full dose. It is equally safe in its consequences, more speedy in its operation, more certain in its effects, and more efficacious than any other cathartic known.

"This oil was introduced into Europe by myself in 1820, and was used and approved of by the most eminent of the profession.

"The smallness of the supply then sent, induced some individuals to adulterate the material; but having brought a supply with me, I beg leave to transmit specimens of it, respectfully soliciting that every Member of your Honourable Court will accept one, which, if presented to medical friends by your Honours, you may the more effectually, and at leisure, learn its true value, from confidential, impartial, and scientific sources; and to annex an extract from a circular letter, addressed by Dr Tegart (Inspector of Hospitals in his Majesty's service), to each subordinate medical officer in the West Indies, which corroborates the character I have given of the croton oil; and I also respectfully take leave to add Mr Surgeon Ainslie's remark respecting it, in his work published at Madras, which proves the internal use of croton oil to have been then unknown, even among the native doctors, or European professional gentleman in India."

## *Extracts of a Circular Letter from Dr Tegart, Inspector of Hospitals, Leeward Islands, Barbadoes.*

SIR,

HEREWITH I send you a small phial of the oil of the croton nut, which has been lately imported into England from the East Indies. In that country it was found eminently useful as a purgative medicine, exciting the secretions, relaxing the skin, and acting on the whole system as a most efficient febrifuge. It has been used in the public hospitals and institutions of London with decided success. I myself have exhibited it, and seen it given by others with an astonishing good effect. The facility of conveying it into the stomach (one drop being a dose), and the quickness of its action, will render it a most important remedy in our materia medica. In apoplexy, I have known a patient insensible and incapable of swallowing, purged and relieved in an hour, by merely putting a drop on the tongue.

From what I saw of this medicine, I augured most favourably of its powers in the ardent, remittent, and yellow fevers of the West Indies. I was therefore induced to bring with me a small quantity, for the purpose of trying its efficacy.

The dose of this oil is from one to three drops. I have generally given two in severe and sudden cases, such as apoplexy and coup de soleil; two drops on the tongue will be found sufficient. When there is irritability of stomach, it will be proper to give it in two ounces of peppermint water (rubbed down first with a little mucilage), for it sometimes excites nausea and sickness when given alone. It creates great heat in the mouth, which lasts for a considerable time.

I have witnessed a case of tic douloureux cured by it, when given with the intention only of remedying a torpor of the bowels in that disease.

### *Extract from Dr Ainslie's Materia Medica, published at Madras in 1813.*

A fixed oil is prepared from the seeds of the Newalum (croton), called Newalum Unnay, which is considered as a valuable external application in rheumatic affections.

*Note by the Editor.*—Mr Conwell is mistaken in supposing that he was the first to administer the expressed oil of croton internally. In the *Herbarium Amboinense* of Rumphius, published by Burmann, folio, Amsterdam, 1750, Part IV., page 100, it is expressly stated, and apparently on the authority of the *Hortus Malabaricus* of Van Rheede, volume 2d. " These kernels begin to be known in Europe, by the name of *Grana Tiglia*, or *Tigalia*. Some of our surgeons have expressed an oil from the dried seeds, of which one drop in canary wine is a common purgative (*cujus gutta cum vino canariensi assumpta vulgare est purgans*) ; others reduce the seeds to powder, of which they form pills with any extract, and of these one grain (pill ?) suffices to purge and vomit, which is an approved remedy in asthma, for relieving the breast by vomiting. "

### *Report of the Diseases of Birmingham, from July 3d to October 3d, 1822. By John Darwall, M.D. one of the Physicians to the Birmingham Dispensary.*

#### ACUTE DISEASES.

| | | | |
|---|---|---|---|
| Apoplexia | 1 | Cholera | 23 |
| Cephalalgia | 2 | Peritonitis | 1 |
| Otalgia | 1 | Dysenteria | 1 |
| Dentitio | 6 | Constipatio | 4 |
| Febris infantum | 13 | Nephralgia | 3 |
| Synochus | 7 | Dysuria | 1 |
| Catarrhus | 2 | Rheumatismus | 5 |
| Scarlatina Anginosa | 3 | Phlegmasia Dolens | 1 |
| Cynanche Tonsillaris | 6 | Phlegmon | 2 |
| Pleuritis | 1 | Furunculus | 2 |
| Pneumonia | 1 | Roseola | 1 |
| Pertussis | 1 | Variola | 1 |
| Hæmatemesis | 3 | Varicella | 3 |

## CHRONIC DISEASES.

| | | | |
|---|---|---|---|
| Hemicrania | 1 | Ascites | 3 |
| Hydrocephalus | 1 | Tympanitis | 1 |
| Hemiplegia | 3 | Tænia | 4 |
| Amaurosis | 1 | Hæmorrhois | 1 |
| Mania | 1 | Struma | 4 |
| Chorea | 3 | Hepatitis Chronica | 4 |
| Epilepsia | 1 | Icterus | 1 |
| Paralysis Dolorifica | 1 | Hypochondriasis | 3 |
| Otirrhœa Purulenta | 2 | Splenitis | 1 |
| Ophthalmia Tarsi | 1 | Physconia | 2 |
| Phthisis Pulmonalis | 23 | Amenorrhœa | 3 |
| Hæmoptysis | 1 | Menorrhagia | 11 |
| Pleurodyne | 2 | Hysteria | 1 |
| Asthma | 9 | Varices | 1 |
| Palpitatio | 1 | Rheumatismus Chronicus | 6 |
| Dyspnœa | 3 | Sciatica | 2 |
| Pyrosis | 4 | Syphilis | 1 |
| Melæna | 1 | Strophulus | 3 |
| Gastrodynia | 5 | Lepra Alphoides | 1 |
| Dyspepsia | 24 | Herpes | 1 |
| Asthenia | 3 | Ecthyma | 1 |
| Marasmus | 6 | Scabies Purulenta | 1 |
| Paraplegia | 1 | Aphthæ | 3 |

The greater part of July was showery, with some days of continued rain. The wind for the most part blowing S. W., and the evenings cold. August was generally fine and open, with great heat in the middle of the day. September, till the 19th, dry and sultry, the wind still S. W., but occasionally veering to the east. The latter end of the month rainy and cold, so that fires were very generally begun.

In looking over the diseases of this quarter, we still find consumption and dyspepsia, the most prominent in the list. One of the cases of phthisis was of that kind which Dr Philip has named dyspeptic phthisis; and to his paper on that subject I feel greatly indebted for the relief I was enabled to afford. The patient had been an habitual drunkard, and, when first seen, he had dyspnœa, cough, puriform expectoration, and hectic fever. On examining the region of the liver, there was great tenderness, and a greater prominence of the ribs than usual. From this state he has completely recovered by local bleeding, and general attention to his digestive organs. Two of the consumptive cases were traceable to contagion. They were the husband and wife of two patients, who had died of phthisis a few weeks before. The latter I had formerly prescribed for, and no one at that time could have less appearance of pectoral disease. She attended and slept with her husband till the last, but did not seem to have been affected, till the colliquative diarrhœa, which at length carried him off, had some time continued. This she represented as extremely offensive, and there is much reason to fear, that her bowels are ulcerated, and that tubercles have formed in the lungs.

The affections of the alimentary canal have not presented any thing unusual. The pain of the epigastrium has in some instances been very severe. One or two have been of that kind which Dr Yelloly refers to the duodenum, and have been greatly benefited by the plan he recommends. It is in this species of dyspepsia, that I have found the application of tartarized antimonial ointment most serviceable. Occasionally it produces sickness, a circumstance which I have long since observed; and it then becomes necessary to suspend its employment. I have sometimes found it very useful in keeping up the irritation of blisters; but when thus employed, it should never be retained upon the blistered surface longer than half an hour, or an hour at a time, as it produces severe pain, and might too highly excite the inflammatory action. With this precaution, it is the best local irritant I know.

Some of the cases of tænia were complicated with hæmoptysis and puriform expectoration, which vanished upon the expulsion of the worms. The oil of turpentine was used for this purpose; but I have not always found it a safe medicine if given alone, especially where there was much tendency to headach. In some instances this complaint was greatly aggravated, and did not yield, till blood had been drawn, either generally or locally. By preceding it, however, with an active purgative, I have been enabled to repeat it without mischief.

Among the disorders of the digestive organs, I have included one case of paraplegia, which occurred in a child. This was the only complete palsy; but others were also brought with slighter affections. It generally commences with a disinclination to walk. The child perhaps will stand, but screams out, if any attempt be made to induce him to set one foot before the other. The appetite is good, the countenance often healthy, and the bowels are moved once or twice a day. Upon more minute inquiry, he is reported to be restless in his sleep, and frequently to flush in the face, with burning hands and feet. The tongue is furred, and, generally speaking, the abdomen is very large. Purgatives usually remove a vast quantity of very fetid purulent matter, mixt with green slime. In the slighter cases, aperient medicines effect a cure in a short time; but in the more confirmed, they are most successfully treated, by alternating them with the lighter tonics.

Cholera was prevalent in September, and has proved fatal in some instances. The attack was often sudden, and the prostration of the strength so great, as to require the warmest cordials to support the system There appears no reason to attribute its frequency to any other cause than the heat, as it did not occur when fruit was most plentiful, nor till the hot weather had some time continued. This indeed seems the most ancient opinion; and though Sydenham refers it to eating fruit, he is not supported either by Huxham or Cullen, nor more lately by Bateman. My experience does not correspond with that of the last excellent physician, as to fruit and vegetables preventing an exuberance of bile, nor have I found those who indulged in animal food, more liable than others to the disease. Some of the worst cases occurred in old people; and poor or improper nourishment often seemed to predispose to its attacks.

There are two instances of those anomalous tumours, to which the name of physconia has been given. One of these is in an old woman, whose general health is not much affected; and from the situation and symptoms, there is reason to believe that the tumour is one of the ovaries. The other occurred in a man twenty-two years of age, and dissection proved it to be the physconia renalis of Cullen and Sauvages. His health was not much affected till a few weeks before his death. When I first saw him, he complained of great pain in the situation of the right kidney; pressure on this part aggravated the pain, and he was unable to lie upon his back. Midway between the right hypochondrium and ilium of the same side, a large hard tumour was perceptible, painful to the touch, tuberculated forwards towards the umbilicus, and extending backwards to the loins, where it was lost. His urine was natural, and he had neither retention of the testicle nor numbness of the leg. His appetite was good; but he had much pain in the stomach. He became in a short time anasarcous and tympanitic, and died rather suddenly. On examination, the tumour occupied the whole right side of the abdomen, and extended downwards into the pelvis. There was no right kidney, but in its place was this disorganized mass. In many parts it was atheromatous, in others more nearly resembling the medullary sarcoma of Abernethy, and in a few places hard and scirrhous. The natural structure of the kidney was no where visible. The left kidney was enlarged, the liver, spleen, &c. perfectly natural.

Many instances of the kidney forming tumours in the abdomen are recorded by different authors. Morgagni has referred to some in the Sepulchretum, and the Medical Communications and Inquires contain others; but the structure and symptoms of these were different from that which I have just related. Dr Baillie has mentioned the conversion of the kidney into a scrophulous mass; and in the Medical Memoirs, three examples of large tumours arising from the kidneys are related by Mr George Pearson; and in the Medical Commentaries, one is recorded by Mr Philip Martineau. Mr Cooke, in his abridgment of Morgagni's great work, has also noticed cases in which the natural organization of the kidney was completely destroyed. Most of these, however discrepant in other respects, seem to agree in the insidious nature of the disease, and the probability, that when it first attracts notice, it is too far advanced to be benefited by medicine.

It seems most likely, that in the case which occurred at the Dispensary, the disease must have endured long, though the pain in the back was scarcely observed till within three months of death.

The instances of menorrhagia were for the most part of the atonic kind, and afforded excellent illustrations of the effect of deranged circulation without plethora, in producing headache and throbbing of the carotid arteries. They were cured by tonics and gentle aperients. Others of these cases, and which ought perhaps rather to be called hemorrhage of the womb, originated from a loaded state of the rectum, and ceased, when this intestine had been emptied. With these, purgatives were insufficient, without injections at the same time.

Small-pox has been very prevalent in several parts of the town, though only one was admitted at the Dispensary. The poor seldom seek for advice in this complaint, and are generally content to let it run its course. The patient marked in the table was not seen till the tenth day; his face was then swelled and livid, his respiration oppressed, and he died the next evening. It is worthy of observation, that he had formerly been in close contact with small-pox, without taking it, and hence deemed himself secure; but on the present occasion, though the disease prevailed in the neighbourhood, he was not aware of having been in any house, where the patient lay. Some few, but generally slight cases, are reported to have occurred after cowpox; but on the other hand, there were many instances of its perfect antivariolous power. In one family of four children, three who had been vaccinated escaped entirely, while the fourth, who was not so protected, had the small-pox severely. In another example, three children were so sharply attacked, as to be deeply marked with it; yet several children formerly vaccinated, who lived next door, were not infected, though no precautions were taken, and though they communicated freely. Similar instances might be enumerated without end; and it is much to be regretted, that so horrible a disease as small-pox, should in a great measure at least, be kept up by the ignorance and prejudice of those, who would be most benefited by its extirpation.

The cases of varicella were irregular vesicular eruptions, and to which, perhaps, the name of varicella ought not to be given. They occurred in infants who had neither been vaccinated, nor had the small-pox. The vesicles formed and died away in a few days, a fresh crop immediately succeeding for the space of six weeks. There were several cases of genuine small-pox in the neighbourhood.

Scarlatina was frequent in the earlier part of the quarter, but was mostly among the upper classes. The sore throat is reported in some cases to have been very bad, but it has usually been a mild disease.

Within the last fortnight, a few cases of general fever have appeared, but they are not generally severe.

I have to make my acknowledgments to Mr Taylor, the intelligent visiting surgeon of the Dispensary, for enabling me to give a more accurate table of diseases, than I could otherwise have done.

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### *Midwifery and Medical Jurisprudence.*

*Dr Gairdner*, Fellow of the Royal College of Physicians, will, in the ensuing Spring, commence a Course of Lectures on *Midwifery*, and the *Diseases* of *Women* and *Children*. During the Course, particular attention will be paid to those branches of *Medical Jurisprudence* more immediately connected with this department. These Lectures qualify for Surgeons' Hall.

Dr G. will also, in the Spring, give private instructions to those Females who propose to practise Midwifery.

*Argyle Square, Edinburgh,*
*December*, 1822.

Edinburgh :—Printed by J. Hutchison,
for the Heirs of D. Willison.

# THE EDINBURGH MEDICAL AND SURGICAL JOURNAL,

## No. LXXV.

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# NOTICES TO CORRESPONDENTS.

Communications have been received from Drs J. A. Ferran, Cumin, Williams, Barlow, Barnes, Duffin, Terry; and Messrs Blake, Swan, Dennet, Payne, Petree.

The following Works have been received :—

The Miscellaneous Tracts of the late William Withering, M.D. F. R. S., &c. &c., to which is prefixed a Memoir of his Life. In two vols. 8vo. London, printed for Longman, Hurst, Rees, Orme and Brown. 1822.

History and Method of Cure of the various species of Epilepsy; being the Second Part of the Second Volume, of a Treatise on Nervous Diseases. By John Cooke, M.D. F. R. S. F. A. S., &c. &c. London, 1823.

Memoir of the Life and Writings of John Gordon, M.D., F. R. S. E., &c. &c. By Daniel Ellis, F. R. S. E. Edinburgh, 1823.

Practical Observations on Fever, Dysentery, and Liver Complaints, as they occur among the European Troops in India; to which is annexed an Essay on Syphilis. By George Ballingall, M.D., F. R. S. E., &c. &c. 2d Edition. Edinburgh, 1823.

Practical Observations on the Treatment and Cure of several varieties of Pulmonary Consumption, and on the Effects of the Vapour of boiling Tar in that Disease. By Sir Alexander Crichton, M.D., F. R. S., &c. &c. London, 1823.

The Edinburgh Student's Guide, or an account of the Classes of the University. By Alexander Bowyer. Edinburgh, 1822.

Pathological and Practical Views of Hydropic Diseases. By R. Newman of Hampshire, Virginia. Worchester, 1822.

Notes on Dr Macintosh's Treatise on the Puerperal Fever. By James Moir, Surgeon, Edinburgh. 1822.

Postscript to Mr Moir's Notes on Dr Macintosh's Treatise on Puerperal Fever.

Review of the present Systems of Medicine and Chirurgery of Europe and America. By Peter Donaldson, Licentiate of the College of Surgeons, Edinburgh, &c. New-York, 1821.

Observatio de Affectibus Morbosis Virginis Hafniensis cui Plurimæ acus e variis corporis partibus excisæ sunt. Auctore J. D. Herholdt, M. D. et P. Havniæ, 1822.

C. W. Hufeland Erlauterungen seiner zusatze zu Stieglitz Schrift uber den Animalischen Magnetismus. Berlin, 1817.

C. W. Hufeland Vorschlag statt der Blausaure das destillirte Wasser der bittern Mandeln, zum Medizinischen Gebrauch anzuwenden, &c. &c. Berlin, 1822.

Dissertio Inaug. Med. de Usu Transfusionis Sanguinis Præcipue in Asphyxia. Scripsit Eduardus Hufeland, M.D. Berolini, 1815.

Ein Blick auf die Lage der Heilkunst beim Antritt der Jahres. 1822.

Observationes Medicas in Praxi Privata Collectas edidit Olaus Lundt Bang. Med. Doct. et Prof. Havniæ, 1822.

Observationes de Situ Tubi Intestinalis Mammalium. Auctore Guil. Lud. Rapp, M.D. Tubingæ, 1820.

Anatomische Untersuchungen uber die verbindung der Saugadern mit den Venen, von Dr Vincenz Fohmann Prosector am Anat. Theat. zu Heidelberg. 1821.

Acta Regiæ Societatis Medicæ Havniensis. Vol. VI. Hafniæ, 1821.

American Medical Botany; being a Collection of the Native Medicinal Plants of the United States, containing their Botanical History and Chemical Analysis, and Properties and Uses in Medicine, Diet, and the Arts; with coloured Engravings, 60). By Jacob Bigelow, M.D. Professor of Materia Medica in Harvard University. 3 vols. Royal 8vo. Boston, 1817-1821.

THE
EDINBURGH
MEDICAL AND SURGICAL JOURNAL.

1. APRIL, 1823.

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# PART I.

## ORIGINAL COMMUNICATIONS.

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## I.

*An Experimental Inquiry on Poisoning by Oxalic Acid.* By ROBERT CHRISTISON, M. D. Professor of Medical Jurisprudence in the University of Edinburgh, &c. &c. and CHARLES W. COINDET, M. D. of Geneva, Member of the Med. Chir. Soc. of Edinburgh, &c. &c. Read before the Medico-Chirurgical Society of Edinburgh, January 8th and February 5th, 1823.

POISONING with oxalic acid, on account of its fitness for criminal purposes, its extraordinary quickness and fatality, and, above all, its frequent and increasing occurrence, * claims more attention than it has yet received. Nothing is hitherto known of its action beyond what may be gathered from a few insufficient experiments on animals, and from some detached, imperfect, and more discordant accounts given in our Journals of its effects upon man.

Oxalic acid has been long used on the Continent as a refrigerant, and for making lemonades; but its acidity being very great, it was used only in small quantities, and therefore never appeared to be deleterious.

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* The Editors of the London Med. Repos. observe, that nine cases had come under their notice within two years and a half previous to the publication of the sixth volume of that work. We have remarked no less than five cases in the London Courier since last March; and as it is probable that others have not come under our notice, it seems reasonable to conclude, that in England, during the last five or six years, no variety of poisoning has been so common.

The first notice of its poisonous properties was taken by Mr Royston in 1814.[*] He briefly relates the history of a woman, who, by mistake, swallowed half an ounce of it instead of sulphate of magnesia, and expired in forty minutes, after enduring the most horrible agonies. Mr Hume of Longacre (who, at Mr Royston's request, repeated his experiments on the suspected substance, and found that it was really oxalic acid) endeavoured to account for its poisonous qualities,[†] by supposing that, through its superior affinity for lime, it decomposes the phosphate of that earth contained in the coats of the stomach. Guyton-Morveau, however, soon proved this supposition to be untenable,[‡] because at blood-heat phosphate of lime is not acted upon by oxalic acid, and because the quantity of phosphate of lime in the coats is almost inappreciable; to which we may add, that, in the very case which gave rise to the theory, there was not the slightest decomposition of the stomach. Morveau even went so far as to deny, that oxalic acid could be the substance with which Mr Royston's patient had been poisoned.

These observations excited considerable interest among the Editors of the London Medical Repository; and the occurrence of a similar accident in 1815 led Mr Thomson, one of the editors, to investigate its action by experiments on animals.[§] From them he inferred, that the acid and the membranes of the stomach mutually decompose one another; that a part of it enters the circulation, because the blood, in various places, reddened litmus; that these phenomena, however, are insufficient to account for death; and that its proximate cause is "the injury done to the heart and brain, which are sympathetically affected by the injury done to the stomach." But his experiments were only three in number; they were made upon the stomach alone, and always with a concentrated acid; they were therefore neither sufficiently numerous nor sufficiently varied to warrant his conclusions; and, besides, they did not agree in their results with the cases already alluded to, in neither of which had the stomach undergone the slightest disorganization.

His opinion, however, derived some weight from several interesting cases published afterwards, and, still more, from a few experiments relative to its action on the cellular tissue performed here by Dr Percy of Lausanne.* Finally, Professor Orfila, in his latest works,† has arranged the oxalic acid with the mineral acids, in the class of irritant poisons, and considers its action to be purely corrosive.

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[*] Med. Repos. Vol. I. p. 382.

[†] Lond. Med. Repos. Vol. I. p. 384.

[‡] Annales de Chimie.

[§] Med. Repos. Vol. III. p. 382.

The evident contradictions in the history just given, besides other circumstances that will appear in the sequel, created in us much doubt as to the correctness of these views, and induced us to undertake a series of experiments, for the purpose of elucidating the subject farther. We were led to submit our researches to the Society, partly because their results differ widely from those obtained by former observers, and explain the errors into which they have fallen; partly because they appear to furnish some curious and useful facts with regard to the action of poisons in general; and, lastly, because they reconcile the outrageous discrepancies among the examples recorded of its effects on the human economy.

The subject of this memoir will be discussed under two heads. The former will consist of an Experimental Inquiry into the Action of Oxalic Acid; in the latter, we shall apply the results of that inquiry to Poisoning in Man.

## PART FIRST.

Poisons have been supposed to act in three different ways.

In the *first* place, some of them act locally; either, as the diluted mineral acids and several acrid vegetables, by irritating and inflaming the tissue to which they are applied; or by chemically decomposing it, as is exemplified in the action of the concentrated mineral acids, the fixed alkalis, and a few metallic salts.

*Secondly*, Others produce on the nervous fibrils of the tissue to which they are applied a peculiar impression, which is conveyed by the nerves to the brain. Such is believed to be the action of alcohol, hydrocyanic acid, and tobacco.

*Thirdly*, Others enter the circulation, whether through the veins or the lymphatics, and then act either on the blood itself, or on the general nervous system, or on some of the important organs. Morphia, strychnia, and some of the other vegetable alkalis, belong to this class.

Further, many poisons act in two ways at once. Thus, most of the metallic compounds act both locally where they are applied, and through the medium of absorption upon distant organs.

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* Dissert. Inaug. Edinb. 1821.

† Traité de Toxicologie, 1818. Leçons de Med. Legale, 1821.

From what has been said in the Introduction, it appears, that, according to some, oxalic acid is purely corrosive in its action; while, according to others, it both corrodes the tissues, and, by sympathy, affects the brain. We shall soon find, however, that these notions, as well as many others connected with them, are either erroneous or ill defined.

I. The first object of our inquiry is, to ascertain, whether this substance really belongs to the class of corrosive poisons; a circumstance that may be determined, by considering, whether, like them, it acts universally in the direct ratio of its quantity and state of concentration.

With this view, therefore, half an ounce of oxalic acid, in twice its weight of water, about 130° F., was injected into the stomach of a dog, by an aperture in the œsophagus, and retained by a ligature.* In two minutes he was seized with violent efforts to vomit, which continued till the 12th minute. The breathing was increased in fulness and frequency. In sixteen minutes and a half it became short, and occasionally suspended for a few seconds. At the same time he hung the head, looked very dull, but continued quite sensible. At last, he fell suddenly on his side, the body was spasmodically extended for a few seconds, then completely relaxed, and, after a few convulsive gasps, he died 21 minutes from the beginning of the experiment. During these convulsive gasps, no pulse could be felt in the chest; and, on opening the body *immediately* after the last of them, the heart was found not contractile; its right cavities much distended with dark blood, while that in the left was small in quantity, and very florid.

The stomach was cut open, and washed four minutes after death. Externally it was somewhat vascular. It contained a few ounces of a thick dark-brown oily-like matter. The internal surface was lined with mucus, not inspissated. The epidermis of the villous coat was removed from the whole of the cardiac region and from the posterior surface, and in patches only from the anterior. Where it still remained it was brittle, less adherent, and of a brownish yellow colour. The posterior surface showed considerable vascularity and streaks of black granular extravasation, confined to the corion of the villous coat. The internal membrane of the œsophagus below the ligature was corrugated, greyish coloured, but strong. All the other organs were healthy.

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* Exp. 1st. To avoid repetition, it may be mentioned, that, in all the subsequent experiments, the acid was introduced and retained in the same manner. The experiments will be given in a subsequent Number.

This experiment was often repeated in similar circumstances, and uniformly with analogous results, varying only in intensity. Of these we shall give a general account.

The violence of the efforts to vomit has been directly proportional to the quantity of the poison; when very violent, they cease sooner; when less frequent or violent, they sometimes lasted above two hours. The animal is always extremely restless, but continues quite sensible until he sinks on his side. He then immediately expires, and in general without a struggle; so that it is sometimes difficult to mark the precise moment of death. The duration of the poisoning we have never observed to be so short as in the case we have detailed, provided much corrosion was actually produced.

On examining the body immediately after death, we constantly found the stomach filled with the same dark fluid, which is evidently extravasated blood acted on by the acid, and perhaps mingled with bile. The internal membrane of the stomach was always of a deep cherry-red colour, generally streaked with lines of black, granular extravasation, never corroded so much as in the case related, and sometimes quite strong and entire.* The fundus is always least, and the cardia and pylorus most affected. Both the coloration and the corrosion were greatest on the prominences of the rugæ, the interstices being sometimes nearly healthy. In one case, the surface of the corion of the mucous coat was softened near the cardia; but we have never observed this softening extend either to the rest of the internal surface of the stomach, or deeper through its coats, as Mr Thomson says he has found.

It appears, therefore, that the acid, when given in large quantity, and in the greatest state of concentration which may be conveniently managed, produces considerable extravasation within the mucous coat, and into the cavity of the organ, frequently an abrasion of its epidermis, and sometimes, though rarely, a peculiar softening of its corion.

In investigating the action of corrosive poisons, it is a point of essential importance to ascertain how much of their apparent effect is owing to a chemical process, and how much is to be attributed to vital reaction. For this end, it is necessary, in the *first* place, to examine the bodies of animals immediately after death; and, *secondly*, to discover what effect the poison has on dead animal matter.

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* Probably because the acid was diluted by the contents of the stomach.

The experiments we have just related, present a fair view of the alterations produced by oxalic acid in animals during life. We shall now mention the changes it effects upon the dead stomach, and it will then appear what mistakes have arisen from confounding the two actions with one another.

A portion of the healthy stomach of a dog was held two minutes in a saturated solution at 130°, (such as we injected into the stomach, Exp. 1.) The epidermis had then separated in a single flake, thickened and brittle, of a greyish colour, and, upon the whole, similar to what we have seen produced in the living stomach. The corion was translucent, its surface very pulpy, and the serous membrane was grey and crisped. When the immersion was prolonged five minutes, the whole corion became gelatinous.

We have likewise tried the effect of a saturated solution at 50° F. * In twenty hours, the villous coat was of a pale, greenish white colour, and less adherent; but it was strong, and its porous structure quite entire. In two days and a half it was brittle, and easily scraped off, and the other tunics were softened, swollen, and translucent. In twelve days, the whole membranes could be spread out with the fingers, and, in thirty days, they were transformed to a semi-diffluent mass, soluble (with the exception of a small quantity of flocculent matter,) in tepid water, yielding flocculi at the temperature of 130 F., and precipitating with tannin after ebullition. The same experiment was repeated on the human stomach; which appears to have a somewhat greater power of resisting the action of the acid.

This action, as far as we have hitherto inquired, is a peculiar one; at least the mineral acids act in a very different manner. Nitric acid, diluted with 12 parts of water, soon renders the whole tunics brittle, dense, and of a lemon-yellow colour, without dissolving them; sulphuric acid, similarly diluted, gives them a pale cineritious tint, corrugates them at first, and then softens them slightly; and no farther change is produced by either in fourteen days.

In order to discover on which of the animal principles the dissolving power of oxalic acid depends, experiments were made with albumen, gelatin and fibrin, as these three products enter

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* The solubility of this acid seems to be very erroneously stated in all works on Chemistry. It is said to be soluble in its own weight of boiling water, and in twice its weight at the temperature of 60°. We have never been able to dissolve it in less than 11 parts of water at 60°; but its solubility increases very rapidly with the temperature. We may mention, that care was taken to determine, by the proper experiments, that the salt we used was really pure oxalic acid.

into the composition of the membranes of the stomach. Albumen forms the chief part of the mucous epidermis, and probably of the serous coat; gelatin forms the whole of the mucous corion, and a considerable portion of the cellular tissue; and fibrin constitutes the greater part of the muscular tunic. *

From these experiments it appears, that oxalic acid, when concentrated, coagulates albumen, but has no effect upon it in other circumstances. It gives to pure fibrin a degree of elasticity and translucency greater than it naturally possesses, but without dissolving it, and it bleaches common muscle, and preserves it from putrefaction, without sensibly altering its condition; but, on the contrary, it dissolves gelatin, and even very rapidly.

When 25 gr. of isinglass were placed in half an ounce of a temperate solution containing 30 gr. of acid, it began to soften and swell in two or three minutes, and in twelve or sixteen hours was reduced to a uniform jelly-like mass. Pure water, at the same temperature, produced, in thirty hours, no other effect than slight softening and flexibility, but no solution, nor even viscosity of the surface.

This action is one of pure solution, in which neither body loses its characteristic properties; for, though the proportion of gelatin be made exceedingly minute, the mixture has a tendency to gelatinize, and precipitates with tannin; while, on the other hand, how small soever be the proportion of acid, the mixture always reddens litmus.

The following conclusions may now be drawn from all that precedes.

1. Concentrated oxalic acid renders the mucous epidermis brittle and less adherent. It dissolves the other coats; but, during life, this action never extends beyond the surface of the corion, and seldom so far; hence its action on the living system is more like that of the pure irritants, producing extravasation of blood within the tissues, and into the cavity of the stomach, and little chemical decomposition.

2. But its action on the dead stomach is so rapid, that, if the examination of the body be delayed a few minutes, the whole corion, and even the other coats, will be found dissolved; and the diluted acid will also have the same effect, though more

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* The statements above differ widely from those in our most modern works on Chemistry, where skin, cellular tissue, mucous tissue, and other textures of the body, are arranged under the general title of Membrane, and supposed to consist chiefly of gelatin. Bichat has shown this to be very incorrect; but further researches are required to establish the precise elementary composition of the different soft solids.

slowly. Hence it is easy to explain why Mr Thomson, in his experiments, found so much apparent corrosion. In fact, he always allowed an interval to elapse sufficient for the acid to act extensively on the dead tissues.

3. The chemical action of oxalic acid is not owing, as Mr Thomson conjectures, to mutual decomposition of the acid and stomach: it is one of pure solution, in which the acid and the animal principles of the tissues remain unaltered.

Having thus ascertained the precise mode in which it acts when highly concentrated, our next object was to discover, whether, like the irritant poisons in general, its deleterious properties are impaired or destroyed by dilution.

With this view, we gave to a dog, betwixt eight and ten pounds in weight, 33 grains of the concrete acid dissolved in six ounces, or 87 parts, of tepid water. In two minutes, he made violent efforts to vomit; in eight and a half, he was seized with certain remarkable symptoms (to be noticed afterwards), very different from those we have detailed in the former experiments, and which we have universally found oxalic acid to produce, when much diluted. In half an hour from the beginning of the experiment, he expired. [*]

We were forcibly struck with the violent action of so small a dose in so diluted a state, and still more when we found, on examining the body, that, excepting a slight cineritious tint of the mucous epidermis, no unnatural appearance whatever could be detected in the stomach.

It follows, that the action of the poison in its diluted state is very different from that of the concentrated acid. But to place the distinction in a clearer point of view, we thought it necessary to give the concentrated acid in such a manner as to furnish an exact point of comparison with the experiment just related. The same quantity, dissolved in two parts of tepid water, was therefore given to a dog of the same weight, and about the same age. In seven minutes he strove to vomit, and continued to do so at distant intervals for an hour and a quarter. At that time, the peculiar symptoms of this kind of poisoning began, and he died about the end of the sixth hour.

The appearance of the stomach was in a few places such as we have shown to be produced by the concentrated acid. [*]

These experiments were variously repeated, and with analagous results.

It hence appears, that a small quantity of acid kills an animal ten or twelve times sooner when much diluted than when highly concentrated; and that the diluted acid must act in some other way than as a simple irritant.

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[*] Expt. 3d.

[†] Expt. 4th.

II. We are now to examine whether these effects can be attributed to a sympathetic impression conveyed by the nerves from the stomach to distant organs. But here it will be necessary to make a few preliminary remarks on what is vaguely called the action of poisons by sympathy.

That some organs, without direct injury, are deranged in their function, when certain other organs have been injured either by a vital process, or by chemical or mechanical violence, admits of no doubt; neither can it be doubted that the impression is often conveyed from one to another by the nerves. It is a fact derived from observation, and known from all antiquity. But, in applying it to the action of poisons, toxicologists have generaly committed a material oversight, by confounding, under the same title of sympathetic impressions, two very different varieties; the one, a sympathy with an actual organic lesion of the part primarily affected; the other, a sympathy with a primary impression of a peculiar unknown nature, that leaves no recognisable sign of its having ever existed.

Of the former, we have an example in the action of the mineral acids, when introduced into the stomach in a state of concentration. Death then often takes place long before it can arise from the injury they cause to the function of the organ. But, indeed, it is by the same kind of sympathy that almost all injuries or acute diseases of the stomach prove fatal. In idiopathic gastritis, or even after injuries from mechanical violence, death ensues, not in consequence of the function of the stomach being annihilated, but from an impression conveyed to the general system with which it is sympathetically connected. This impression is occasionally conveyed with great rapidity: Thus, rupture of the stomach may prove instantaneously fatal. But far more generally, as we have seen, with regard to the mineral acids, the kind of impression we are considering does not develope itself for many hours, or even days. In this respect, indeed, there is a striking irregularity; so that sometimes the sympathetic communication does not even take place at all, and death follows purely from exhaustion. * In the case of poisons,

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* Tartra, sur l'Empoisonnement par l'Acide Nitrique.

it has not hitherto, we believe, been suspected, that this kind of sympathetic action may prove rapidly fatal.

It is to the second variety of action by sympathy (which, however, has not been properly distinguished from the other), that the cases of rapid or instantaneous poisoning have been attributed. This variety consists in the sympathy of distant organs with a peculiar impression made on the sentient extremities of the nerves, and unattended with any organic alteration, or any other visible sign of its existence. By such an impression, the extremities of the nerves may be paralyzed or irritated, without the tissue being destroyed, inflamed, or otherwise injured. It is exemplified, according to general belief, in the action of alcohol, tobacco, and especially of hydrocyanic acid. It is this kind of sympathy whose existence was denied by one of us in a memoir lately read before this Society. * It should be mentioned, that we do not both maintain unreservedly the opinions advanced in that memoir. The arguments there used, however, were taken in part from experiments conducted by us together, and analogous to those we are about to relate. It will be seen, that our present inquiry corroborates Dr Coindet's views, in so far as it removes from the list of sympathetic poisons, one that formerly held a conspicuous place among them.

The communication of a peculiar imperceptible impression along the nerves from the stomach to distant organs has been admitted, chiefly in consequence of the experiments of Mr Brodie, related in the Philosophical Transactions for 1811. We must refer to the memoir of Dr Coindet for a detailed explanation of these experiments. At present, we may just observe, that the only argument in favour of Mr Brodie's views, which applies generally to all the supposed cases of this kind of poisoning, and the only one bearing strongly upon the subject of this memoir, is, that they act with a rapidity which cannot be produced but by an instantaneous transmission along the nerves.

Some of them are said to act instantly after they are applied, which is thought to be irreconcilable with their having been conveyed through the circuitous channel of absorption. But an *Instant*, in its ordinary acceptation, is too vague a term for physiological language. In this sense, moreover, it is a most important interval of time in the exercise of the very function with which it has been supposed incompatible. This is evident with regard to some poisons that unquestionably act through the medium of the circulating system alone. For example, when strychnia is given in a quantity, even insufficient to kill, we have seen its action commence in 30″, and Magendie and Delille have seen it begin in fatal cases within 20″, a period which, in ordinary speech, may well be denominated an *Instant.* The instantaneous effect of poisons, in the way the expression is almost always used, affords, therefore, no proof that they act by sympathy, and no argument against their acting through the medium of absorption.

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* Not yet published.

Let us now apply these general remarks to the subject of the present memoir.

Authors have not expressed clearly to which of the varieties of sympathetic action they would refer that of oxalic acid. When it causes disorganization of the stomach, it must evidently produce, according to the general views just given, a sympathetic injury of the general system, or of some remote organ. But it never causes disorganization, except when highly concentrated; so that, if it always acts through sympathy on the brain, as is generally believed, the affection of the brain must depend much more commonly on some imperceptible impression made on the sentient extremities of the nerves where it is applied.

This distinction being drawn, we shall now show, by experiment, that when the stomach is injured, a remarkable sympathetic action is exerted, as we might reasonably expect; but that no such action occurs, in those more numerous instances, in which no visible injury is done to the stomach.

The *first* experiment with the concentrated acid was repeated upon another dog, under circumstances precisely the same, except that, half an hour before the poison was injected, we removed half an inch of the conjoined par vagum and sympathetic on each side of the neck. The former animal, we have seen, began to make violent efforts to vomit in two minutes, and died in 21 minutes. This dog, on the contrary, never had the slightest tendency to vomit. He soon became very restless, however; and, in 40′, he was affected with irregularity in the fulness and quickness of breathing, slight tremors in the thoracic muscles, felt only by the hand, and a peculiar dulness of sensation. In two hours and a half he began to stagger a little, but remained quite sensible; and, three hours afterwards, was found in the agonies of death. *

This experiment was repeated several times, and always gave analogous results.

It appears, therefore, that the division of the nerves connecting the stomach with the brain impedes very much the action of the concentrated acid. It now remains to determine the effect of the same operation when the poison is much diluted.

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* Exp. 2d. In this animal, death was caused, as will afterwards be seen, by absorption, the slowness of which is easily accounted for.

Into the stomach of two strong rabbits, of the same size and age, we injected a dram of the acid, dissolved in 11 parts of lukewarm water. In one, the conjoined par vagum and sympathetic nerves were divided on each side of the neck, in the other they were left untouched. The latter, in 8½ minutes, began to breathe hurriedly, and to pull his head backwards on the spine. At the end of ten minutes it was seized with paroxysms of most violent opisthotonos, and death took place 13′ after the commencement of the injection. In the former, whose nerves were previously divided, the breathing became hurried, and the head was thrown back 10 minutes after the injection began. In no long time it was attacked with violent opisthotonos, and in 14 minutes death was complete. In neither was there any derangement of the coats of the stomach, except that in each the cardiac end was of a pale, yellowish-brown colour, and the toughness of the epidermis slightly diminished. *

It is impossible that two experiments should agree more exactly in all their details; and they show most satisfactorily, that whatever impression the nerves may convey from the stomach to the brain, that impression has no concern either with the symptoms produced, or with the fatal event that succeeds them.

It cannot be objected to the validity of these experiments, that, after the nerves had been divided, an impression on the stomach may still pass to the brain by their collateral anastomoses. For, in the very slow return of sensibility after the division of the branches of the 5th and 7th pair in the face, or of the median nerve before it supplies the forefinger, we have abundant evidence, that the anastomosing branches cannot carry the rapid impressions conveyed by the main trunks. Besides, the experiments we have related bear internal evidence of their conclusiveness. In the *first* place, little or no vomiting is produced by the poison, if the nerves are previously divided; and, *secondly*, when the poison is so given as to produce an organic lesion, and, consequently, an impression which must pass along the nerves to the brain, the division of these nerves will fairly obstruct its passage.

On the whole, then, it appears, that death from oxalic acid never depends on an impression communicated by sympathy to the brain, except in the rare instance of extensive local disorganization. In this particular point of view, it does not differ from all other agents that inflame or destroy the tissue of the stomach.

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* Exp. 5th and 6th. In making these comparative experiments, it may be noticed, their success depends on animals being chosen very nearly of the same size and age. For we found, that the same quantity of oxalic acid injected into the stomach of a younger and smaller rabbit brought on the symptoms in less than half the time mentioned above, and the animal died in seven minutes.

Farther, in reference to general poisoning, our experiments appear to show, that an action by sympathy, depending on organic lesion, may be exerted with a rapidity which was not formerly suspected.

III. Since, in most circumstances, the effects of oxalic acid arise neither from the chemical injury done to the part where it is applied, nor from a sympathetic action upon the brain, it now only remains for us to inquire, whether it acts on distant organs through the medium of absorption. This, indeed, follows almost of necessity from what has gone before, as poisons act in no other mode besides the three already mentioned. But it would be improper to rest satisfied with this negative proof, more especially as the experiments now to be mentioned will fortify strongly the arguments advanced in the two foregoing sections.

This branch of inquiry may be conveniently considered under two divisions. We shall first prove that the poison enters the circulation, and then endeavour to point out the organs on which its power is exerted.

1. The first circumstance tending to show that it acts through the circulating system is, that whatever be the tissue it is applied to, whether it be introduced into the stomach or intestines, or injected into the peritonæum, pleura, or cellular substance, the symptoms it induces are the same in general character. Some slight shades of difference may indeed be discovered, but these evidently arise from variations in the quickness of absorption; for it will be seen in the next subdivision, that the poison acts, not upon one, but on several organs; and hence, according to the quickness of absorption, the injuries they suffer will modify and obscure the symptoms that each would singly give rise to.

2. In the next place, its activity is nearly proportional to the absorbing power of the tissue to which it is applied. A quantity that will prove speedily fatal, when applied to the serous system, may be insufficient to kill an animal of the same size, if it is introduced into the stomach.

Six drams of a solution containing 33 grains, were injected into the stomach of a full-grown dog, weighing nearly 20 lbs. In 12′ he tried to vomit, and the efforts were renewed for three quarters of an hour. He was then seized slightly with the symptoms peculiar to oxalic acid. These, in four hours, had nearly disappeared; and two days after the experiment began, he had no affection, but what arose from the ligature of the œsophagus. * The same quantity was injected into the left pleura of a full-grown dog of the same weight. In 10′ he was suddenly and violently affected with the symptoms peculiar to oxalic acid, and two minutes afterwards he expired. †

Many other experiments were made upon the serous, mucous, and cellular tissues. It may be mentioned, in a general way, that the peritoneum is less active as a channel of introduction than the pleura, which apparently depends on the poison, when applied to the pleura, entering directly the pulmonary circulation.

As to the cellular tissue, it apparently contradicts the general statement just given. For, when four ounces of the same solution were injected under the skin of the chest and belly of a dog weighing 30 pounds, the oxalic symptoms, though they appeared in 13′, developed themselves very slowly, were not fully formed for two hours, and did not prove fatal till between the fourth and sixth hour. ‡ This observation appears, at first view, inconsistent with the bibulous vessels being the medium of action, since poisons that act through that channel are commonly said to act with great rapidity when applied to the cellular tissue. Upon this point two explanations may be given, which appear of some importance with regard to general poisoning. Most experiments on the cellular tissue have been made with poisons that act in minute quantities, while oxalic acid must be given in large doses, and largely diluted. Hence, considered in relation either to these poisons, or to itself when applied to the peritoneum or pleura, it is almost impossible to extend it over a proportional surface of cellular tissue. But further, the absorbing power of the cellular tissue has not been satisfactorily determined even as to those poisons that act in minute doses; for they have not been applied to the unbroken tissue, but to the surface of a wound, on which there are open mouths of vessels to transport it at once into the circulation. In our experiments upon the cellular tissue, we have always applied the acid to it, by gently thrusting the pipe of a syringe through a small wound, three inches under the loose skin of the loins or chest. Dr Perey, in his experiments, applied it in a state of high concentration to a wound in the thigh; § and it is no wonder that he then perceived no effect, for it can hardly be said to have been applied to the cellular tissue; and it could not enter

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* Exp. 7th. † Exp. 8. ‡ Exp. 9th. § Diss. Inaug. Edinb. 1821.

the open vessels, for it will shortly be seen, that it instantaneously coagulates the blood upon their mouths.

We have also introduced the poison directly into the veins of dogs of above 20 lbs. weight, by injecting it in small successive portions, and very much diluted. The first portions produced transient fulness of breathing, and weakness of the pulse; but at last, when about 8 grains were injected, the action of the heart ceased, the animals made three or four deep hurried inspirations, and then suddenly expired. *

Thus, then, the more immediately oxalic acid is introduced into the blood, the more intense and rapid is its action. It follows almost of necessity, that its power is exerted through the medium of the circulation.

The remarks just made furnish some corroboration of the theory lately advanced by one of us (in the memoir already quoted), to account for the effect of different tissues on the intensity of the action of poisons. † Here it must again be understood, that we do not both adopt that theory unreservedly. A vast field of inquiry remains to be explored, ere we can both consider it as established. Yet some facts certainly tend to show, that a mere difference in the quickness of absorption will not explain the great difference of intensity observed in the case of some organic poisons which act through the medium of the circulating system only. Neither is it irrational to suppose, that these organic poisons, owing to their destructibility, may be in part decomposed by the complicated processes carried on by some of the tissues to which they are applied. The difference just noticed in the intensity of the action of oxalic acid applied to the stomach and pleura, and injected into the veins, is greater than can be accounted for by the mere difference in the rapidity with which absorption is carried on in these systems.

3. Another proof that it acts through absorption is, that its effects are produced with unimpaired rapidity, by its application to a part of which all union with the body has been previously destroyed, except that by blood-vessels. This will appear distinctly from the following comparative experiment. Two young dogs were chosen, of the same size and age. In one, a portion of small intestine was secured at each end by ligatures, and an ounce of solution injected into it containing 45 gr. of acid. The

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* Exp. 10th.

† At present, we can only mention, in a general way, that, according to Dr Coindet's views, the organic poisons, when they are absorbed, are likewise in part decomposed, or undergo a kind of digestion, most manifest in the stomach, less so in the intestines, still less in the serous cavities, and least of all when they are injected into the veins.

process was repeated in the other; but besides, double ligatures were applied at each end, the intestine divided betwixt them, and all the connexions of the severed portion carefully dissected away, except four arteries and veins. The first animal began to vomit in 19 minutes—the more peculiar signs of the action of the poison appeared in an hour and 18 minutes, and death ensued betwixt the 9th and 16th hour. The other, in which the intestine was connected with the body by blood-vessels only, began to vomit in 22′—was seized with the peculiar symptoms in 33′—and died betwixt the 3d and 5th hour.* The effect was therefore more rapid when all connexion was destroyed but the blood-vessels; an accidental occurrence which probably arose from a greater length of intestine having been employed in the second experiment.

4. Some of our experiments have likewise furnished the clearest evidence of the acid being actually taken up by the bibulous vessels. The fact holds with regard to all parts of the body, but with none more remarkably than the serous tissues. Thus, in a dog who survived 75′ after the injection of four ounces of a cold saturated solution under the skin of the chest and belly, no appreciable quantity of fluid could be collected.† Again, two ounces of a solution containing 22½ dr. were injected into the peritoneal sac of a cat, and proved fatal in so short a period as 14′; yet, on opening the abdomen immediately after death, we found scarcely a drachm of an acid liquor remaining.‡ Further, three drachms dissolved in seven parts of water were injected into the sac of the right pleura of a large dog, and killed him in five minutes. The chest was immediately examined after death, and there remained in the right pleura but one ounce of fluid; while four drachms and a half were found in the sac of the left pleura, and only a minute quantity in the pericardium. All these powerfully reddened litmus.§

There can be little question, therefore, that, in most circumstances, oxalic acid acts through the medium of absorption.

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* Exp. 11th and 12th. † Exp. 9th. ‡ Exp. 13th.

§ The presence of the acid in the left pleura and pericardium, we believe, must be attributed to transudation during life; although indeed the existence of such transudation is generally denied, and there are no facts hitherto published to prove it. The body, in the case noticed above, was examined instantly after death. We have found precisely the same appearances in another animal (Exp. 4th), and analogous results were obtained with alcohol; but in these cases the examination had been delayed till at least a day after death. It is not easy to conceive how the poisons could have been otherwise transmitted, for we never found them in any other serous cavity; and, in the case related above, the acid in the left pleura was so strong and abundant, that it could not have passed through the circulation, without firmly coagulating all the blood in its course,—a condition evidently impossible.

The next point we were naturally led to inquire into was, whether it could be discovered in the circulating fluids, and what effect it has upon them. From the experiment on the intestine already related, it is evident that the search must be made chiefly, if not entirely, in the red vessels, and, above all, in the veins. With this view, therefore, we have examined the action of oxalic acid; first, on the principles of the blood individually; then upon these combined together in blood newly drawn from a vein; and lastly, on that fluid while it circulates in the blood-vessels.

1. As to the separated principles of the blood, the only action it exerts of any note is on the colouring particles.

From its effects on albumen, already mentioned, it may be conceived, that the *serum*, being diluted albumen, will be little affected by it in any circumstances. In fact it merely neutralizes the free alkali, and decomposes the earthy salts, which the serum contains in minute quantity. When the acid was gradually added to half an ounce of the serum of blood drawn two hours and a half before from a man labouring under mild pleuritis, a slight precipitate fell down; half a grain just neutralized its free alkali; and, in the mixture, oxalic acid was easily detected by the hydrochlorate of lime. It will soon be perceived why we are so minute in relating these circumstances.

On fibrin it has no action whatever, unless that it preserves it from putrefaction. This is shown very remarkably with regard to muscular fibre, of which we have now kept a little bit in a cold saturated solution for 80 days without any change taking place, except a little bleaching, and some increase in firmness. Similar results have been obtained with the pure fibrin of the blood.

With the colouring particles the acid evidently exerts a chemical action; but its precise nature is not easily ascertained, as no method has yet been discovered for separating the colouring matter, pure and unaltered, from the serum. Mr Brande observed, that diluted oxalic acid dissolves the colouring particles mixed with serum. We have found, that, when concentrated, it converts the mixture into a firm, black, uniform coagulum. In these respects it is analogous to the mineral acids; and, like them, it probably forms peculiar compounds with the particles.

2. The action of the acid on blood *just* drawn from the body, and therefore still endowed with vitality, is different according to the proportion employed. Half a drachm in eleven parts of tepid water, added to two ounces of human blood instantly after it was drawn, converted it in a few seconds into a firm, black, uniform coagulum, like that procured with the serum and colouring

matter only. But from one to five grains dissolved in 60 parts of tepid water, gives to the same quantity of blood a slight brownish tint, prevents entirely its coagulation, and even in part hinders the serum from separating. A single grain may be discovered in the filtered fluid, by affording a copious precipitate with hydrochlorate of lime. In consequence of its property of coagulating the blood, oxalic acid applied to a bleeding surface chars the fluid which oozes from it, and speedily checks the hemorrhagy.

*Lastly*, We have to determine the nature of its action on that fluid while still circulating in the vessels.

With this view, therefore, in a dog, who died 30 seconds after the injection of eight grains into the femoral vein, we examined very carefully the blood in the vena cava and right side of the heart. It did not redden litmus, and in the filtered serum the hydrochlorate of lime caused not the slightest precipitate. In many animals, too, that had been killed by the introduction of the poison into the stomach, intestines, pleura, or peritoneum, these experiments were carefully repeated; and we never could detect the slightest trace of oxalic acid even in the vessels nearest the seat of absorption.[*] We have also examined the chyle in the thoracic duct after the poison had been introduced into the intestines; we have even attempted to trace it in the bile, the urine, the frothy contents of the air-cells of the lungs, and the moisture of the serous surfaces, but with no better success.

Both Mr Thomson and Dr Percy affirm, however, that when it has been introduced into the stomach or rectum, the blood in the mesaraic veins, in the lungs, and in the heart, frequently reddened litmus. Upon this point, therefore, we are completely at variance with them. We have searched all parts of the body so very often, and with such scrupulous care, that we may be permitted to suggest, that these gentlemen have allowed themselves to be misled by the tint, which the litmus acquires from the colouring matter of the blood, and which we have always removed easily by slight washing.

We have never sought for it among the colouring particles; because from what has been said of its action on fresh-drawn blood, it evidently could not unite with those particles without being also discoverable in the serum. Besides, we have never observed in the blood of animals poisoned by it, any visible change that could be referred to its action.

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[*] When the acid has been introduced into the stomach, and the animal has been dead some time before examination, it may be found in the charred blood contained in the vessels of the tunics; but it got there chiefly after death.

After so many unequivocal proofs of its absorption, it was certainly a most unexpected circumstance that it should not be found in the blood; and it is not the less singular, when we consider how easily it is detected, if added to blood just drawn from a vein. The test of hydrochlorate of lime, as every one knows, is exceedingly delicate; and we have ascertained, that its delicacy is not impaired by the presence of such principles as are contained in the serum of the blood.* A very minute portion, however, will not be detected; because it is rendered insoluble, by previously uniting with the lime in the serum; but this will not nearly account for the loss of so large a quantity as we injected into the veins.

It is probable, therefore, that the poison is decomposed by a vital process, and forms, with the principles of the blood, compounds in which no unaltered oxalic acid exists. The question will then naturally occur, Where is this decomposition effected? Is it at the mouths of the absorbing vessels, or in the blood-vessels themselves, or in the lungs? It can hardly take place at the mouths of the absorbing vessels; for it is equally rapid and perfect when the poison has been injected at once into a large vein. It can as little take place, perhaps, in the blood-vessels, whether by the action of the vessels, or of the blood itself. For as to the vessels [not capillary], we know nothing to warrant us in attributing to them such a property; and the blood itself does not possess it, else why does it not exert the same action when newly drawn from a vein, and still endowed with vitality? May it not be inferred, therefore, if there is any such decomposition, (and how can we otherwise account for the acid disappearing) that it takes place in the lungs? At all events, it is there that the proofs of it must be sought for, since they form the outlet by which such extraneous matters are thrown off.

We were desirous of determining, by experiment, whether in animals, under the influence of oxalic acid, there is produced in the pulmonary exhalations any change that could be referred to its decomposition. This we have been withheld from undertaking, not so much on account of its difficulty, as of our approaching separation, by the departure of one of us for his native country.

Meanwhile, the foregoing remarks render it probable, that, by the agency of the lungs, the poison is decomposed, and its elements form, with the principles of the blood, peculiar compounds, to which the symptoms of poisoning are to be referred. And whatsoever, in the present instance, may be the import of these speculations, they furnish grounds enough for encouraging toxicologists to enter on a field of inquiry wholly new, yet probably rich in interesting results, viz. what share have the lungs in the decomposition of poisons that have been absorbed and mingled with the blood?

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* When we treat of the tests of the acid, it will be seen how necessary it is to ascertain this point before drawing any inferences from the action of chemical tests on animal fluids.

In the second subdivision of this Section, we proposed to inquire on what organs its power is exerted. This will appear from the consideration of the symptoms and the appearances after death.

The symptoms differ according to the quantity given, and the degree to which it has been diluted. They likewise differ somewhat, according to the tissue to which it has been applied;—and, further, they vary in different species of animals. They are seen most characteristically when the acid has been so given as not to prove fatal for an hour or more.

If, with this view, a small quantity be injected into the stomach, intestines, or peritoneum of a dog, he is soon seized with violent efforts to vomit. But the first unequivocal sign of its action is generally a slight permanent stiffness of the hind legs, drooping of the head, weakness and increased frequency of the pulse, and a very peculiar dull, sorrowful look. About the same time, there appears a slight sudden check in inspiration, from the respiratory muscles contracting before the chest is fully expanded. Gradually several of these come together, so as to constitute paroxysms of short hurried breathing, with intervals of ease. Meanwhile, the stiffness of the hind legs increases; they become likewise insensible, and often the spasm gives place to paralysis; he jerks the head occasionally backwards, walks with a peculiar stiff gait, and assumes very odd postures, from inability to regulate the motions of the limbs. As the poisoning advances, the motions of the chest during the paroxysms become more and more confined by spasm of the muscles; and at last there is a period towards the close of each paroxysm, when the spasm is so great as completely to suspend the respiration. This is commonly accompanied with more or less extension of the head, tail, and extremities, sometimes amounting to violent opisthotonos. In the intervals the breathing continues hurried, and the heart beats very feebly and rapidly. In one case only we observed it prodigiously strong, so that it might be heard a few feet from the animal. The insensibility hitherto limited to the hind legs now extends to the trunk and fore legs, and lastly the head. As the insensibility increases, the breathing diminishes in frequency, the spasmodic paroxysms become more and more obscure, and then cease altogether. For some time, however, they may be slightly renewed, by striking the back and limbs; but at last the animal falls into a state of deep pure coma, with complete relaxation of the whole body. The heart now can scarcely be felt; the breathing is slow, regular, and short, and becomes gradually more obscure, till finally life is extinguished without a struggle.

In the symptoms just detailed, several striking variations are produced by differences in the dose. Thus, if it be augmented, the fits of spasm come on early and with great violence, the intervals are marked by remissions only, and the animal expires in a paroxysm before the stage of insensibility begins. The action then resembles considerably that of the vegetable alkalis, brucia and strychnia; but differs from it in being also exerted, as we shall soon see, upon the heart. Death may be produced, in this manner, in three, five, or ten minutes.

If, on the other hand, the dose be much diminished, there may be stiffness of the hind-legs, much dulness, drooping of the whole body, and a sort of somnolency, without insensibility, or even without spasmodic paroxysms, and then the animal will commonly recover. In such cases, notwithstanding the local irritating power of the acid, inflammation is not apt to ensue; for in two dogs, one of which recovered from the effects of a scruple, and the other from those of thirty-three grains of the acid introduced into the stomach, we found that organ perfectly natural. The diluted state of the acid is in part the cause of this; for if it be given in a large and concentrated dose, and allowed to act for a few minutes, and then removed or any how destroyed, an inflammation will take place of a peculiar kind, limited entirely to the parts that have been injured. A curious case of the sort will be mentioned, when we treat of the effects of antidotes in the second part of this inquiry.

Similar modifications arise from the degree to which the acid is diluted, dilution having nearly the same effect as increase in quantity.

The symptoms likewise vary somewhat, according to the tissue to which it is applied. Thus no vomiting precedes the spasmodic symptoms, if the poison has been injected into the pleura or cellular tissue. Moreover, we have always found the paroxysms of spasm to be most remarkable when it was applied to the serous tissues.

Lastly, they vary in different species of animals. Thus, cats are more rapidly killed by it than rabbits inferior in size, and frequently the spasmodic paroxysms are not distinct. In rabbits, the opisthotonos is always remarkably violent. When a drachm in twelve parts of water is introduced into the stomach, the trunk and extremities during the paroxysms are extended with such suddenness and force, that the whole body is often raised nearly two feet into the air.

In relating the appearances found in the dead body, we shall confine ourselves at present to those only which will aid us in discovering the organ it acts upon; the rest will be mentioned under the application of our inquiries to poisoning in man.

When an animal is examined immediately after death, no appearance of note is found in the brain, the peritoneal sac, or the intestines.

Unless death has been very rapid, the lungs are almost always studded on their surface with bright scarlet spots, and sometimes we have seen even the whole parenchyma of a uniform and beautiful scarlet colour. At the same time, there was never any effusion, either into the air-cells or into their cellular tissue.

In cases of poisoning that prove fatal before the stage of insensibility comes on, the heart, two or three minutes after death, is found neither contracting nor contractile; its pulmonary cavities are distended, and the blood is dark in those cavities, and florid in the aortal. This fact is conformable with what we have observed in the same animals just at the time of death, viz. the contractions of the heart are almost imperceptible even before the breathing ceases, and never continue after it. In the slowest cases, in which coma prevails for some time before death, the heart, though very feeble in its contractions towards the close, beats a little after the breathing has ceased; and then the blood is found equally dark in both vascular systems. There is likewise an intermediate variety of poisoning, wherein the stage of insensibility is short, and the heart scarcely survives the stoppage of the respiration; and in such cases, the blood of the aortal cavities is darker than natural, but still considerably more florid than that of the veins and pulmonary cavities.

From this account of the symptoms and chief appearances after death, it is evident that there are four organs chiefly acted on—the spine, the brain, the heart, and the lungs.

The order of the symptoms seems also to indicate, that the primary action of the poison is on the spine and brain, and that the heart and lungs are affected secondarily through the injury done to the nervous system.

Thus, the first symptom observed is spasmodic contraction, or sometimes paralysis of the hind-legs; next, the trunk is similarly affected, as shown by the spasm of the muscles of respiration; and then the animal becomes insensible, which marks the commencement of an affection of the brain. The functions of the heart and lungs begin to suffer as soon as the insensibility begins, the pulsations of the heart becoming feeble and hurried, and the impeded respiration bringing on symptoms of incomplete asphyxia.

These two functions are variously affected in different circumstances. When the dose has been small, the heart suffers less; the signs of an injury of the brain are fully developed, and end in pure coma,—in consequence of which the animal dies slowly asphyxiated. This is shown not only by the symptoms, but likewise by the heart contracting after death, and by the arterial system being filled with black blood. But when the dose has been greater, the heart's action is destroyed at once through a sudden impression conveyed from the origin of the nerves, before the symptoms either of coma or of asphyxia can be developed; for then the heart does not contract after death, and the blood in its aortal cavities is florid. It is a curious confirmation of this secondary action on the heart, that precisely the same appearances are found when the nervous system has been powerfully irritated, not through absorption, but by sympathy with extensive injury of the stomach. In that case, too, the heart loses its contractility as soon as the animal expires, and its aortal cavities contain florid blood.

We have made some experiments * with the view of ascertaining whether the analogous vegetable acids, the citric and tartaric, are in like manner poisonous. When given to cats in the dose of a drachm, and dissolved in 12 parts of water, they produce no effect whatsoever.

### CONCLUSIONS.

1. Oxalic acid, when introduced into the stomach in large doses, and highly concentrated, irritates it, or corrodes it, by dissolving the gelatin of its coats; and death takes place by a sympathetic injury of the nervous system.

2. When diluted, it acts neither by irritating the stomach, nor by sympathy, but through the medium of absorption upon distant organs: And, *cæteris paribus*, it acts much more rapidly when diluted, than when concentrated.

3. Though it is absorbed, it cannot be detected in any of the

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* Exp. 17th and 18th.

fluids, because probably it undergoes decomposition in passing through the lungs, and its elements combine with the blood.

4. It is a direct sedative. The organs it acts upon through absorption are the spine and brain primarily, and the lungs and heart secondarily: And the immediate cause of death is sometimes paralysis of the heart, sometimes slow asphyxia, and sometimes a combination of both.

## PART SECOND.—POISONING IN MAN.

Under the second head of this inquiry, namely, the application of our experiments to Poisoning in Man, we shall treat, 1*st*, of the symptoms; 2*dly*, of the morbid appearances; 3*dly*, of the treatment; and, 4*thly*, we shall consider its relations to Medical Jurisprudence.

I. As to the symptoms produced by it in man, little is known, for the histories hitherto given of the cases are very imperfect. Nevertheless, some general account may be given of them, since they have not yet been collated, and many of the discrepancies among them may be explained by the remarks made upon the symptomatology in animals.

Eleven cases have obtained a place in our Journals. * Of these three are mere notices (2. 3. 4.), and several others want the history of the symptoms; the poison often proving so active, that the patient dies before he is seen by the physician.

In every instance it was swallowed accidentally, having been mistaken for the sulphate of magnesia. It has therefore been always previously dissolved, but the strength of the solution is hardly ever mentioned. The quantity has varied from three drachms to two ounces; and has generally been taken in the morning, when the stomach was empty.

None of the poisons in common use are so rapidly and unerringly fatal. Among all the cases alluded to (besides many more noticed in the newspapers), there have been only two of recovery. Three of the remainder lived a few hours; the rest expired within an hour; and one person, who swallowed six drachms, survived scarcely fifteen minutes.* The rapidity of the poisoning has depended chiefly on the quantity taken, and the length of time it remained in the stomach.

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* 1. Med. Rep. I. 382.
2. London Courier, March 1822.
3. and 4. Edin. Med. and Surg. Journ. XIII. 249.
5. Dublin Hosp. Rep. II.
6. Med. Repos. XII. 18.
7. Do. III. 380.
8. Do. XI. 20.
9. Perey, Diss. Inaug. Edinb. 1821. p. 11.
10. Med. Repos. VI. 474.
11. Edin. Med. and Surg. Journ. XIV. 607.

The first symptoms are, in every case, immediate burning pain in the stomach, and sometimes too in the throat. Violent vomiting in general follows either instantly or in a few minutes, and continues till near death; but in two cases (7. 8.) there was none, and in another it was exceedingly slight (10). These three all died within half an hour. The vomiting, how immediate soever it may be, does not always afford much chance of recovery. A woman who swallowed two ounces, though she discharged it instantly, died twenty minutes afterwards.† The matter discharged has been commonly dark, and in two cases sanguinolent, which accords with what we have often witnessed in animals.

Death generally happens too soon for gastritis to be produced. But indeed this seems to be an unlikely occurrence; for a woman who recovered, though she was treated by stimulants, had scarcely any symptom of inflammation; so that on the day after the accident she was almost well. In the other case of recovery there was apparently a low kind of inflammation for three or four days; but of this there is no certainty, as the patient was seized on the 7th day with a low nervous fever prevalent in the neighbourhood, and died of it two weeks after he swallowed the poison. The absence of inflammation, after the stomach has been so violently irritated, cannot be easily accounted for; yet it coincides with what was mentioned in the former part of this inquiry with regard to the effects of the poison upon dogs.

The bowels have seldom been much affected. Several have complained of some pain in the upper part of the belly; two only have suffered from gripes and purging (1. 9.); and, on the contrary, the two persons who recovered were rather affected with constipation.

The signs of depressed circulation have been always very striking. The pulse, in every case, became imperceptible; and, even in those who recovered, it could not be felt for several hours. This state of the pulse has naturally been always accompanied with deadly coldness, clammy sweats, and sometimes lividity of the nails and fingers.

Most of the patients had strong symptoms of disorder of the nervous system. The two who recovered complained much of numbness and tingling of the extremities long after the more violent symptoms had gone off: two others became insensible before death: and four were affected with convulsions either at the time of death, or a short while before it.

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* The London Courier for February 1st 1823, notices an inquest on the body of a young man who appears to have survived scarcely ten minutes.

† The solution was highly concentrated, the acid having been dissolved in three parts of water.

II. The examinations of the dead bodies, though in general conducted judicially, are both very deficient and exceedingly discordant. Yet many of the apparent contradictions may be reconciled, by attending to the circumstances under which the poison acted; and without doubt they might all be so reconciled, had the authors been more precise in their phraseology, and more minute in their descriptions.

A reddish froth sometimes issues from the mouth and nose. In one case there was a good deal of general emphysema ten hours after death (8). No other mention is made of the external state of the body, except in one case (1.), in which it is said to have been natural, and without ecchymosis.

The brain has been rarely examined. In one case the cerebral vessels were turgid; in another there was some effusion under the arachnoid;—appearances probably independent of disease.

The state of the lungs, heart, or blood, is never alluded to.

The stomach, and even the intestines, are said in three cases to have been inflamed externally (1. 8. 9.); but as the term inflammation is given without a detail of the actual appearances, it cannot be admitted into the account, especially as, in some careful dissections, no such appearance was observed. In animals, we have never found on the outer surface of the stomach or intestines any thing more than a slight injection of vessels, even when the poisoning had lasted five hours, and the internal coats were manifestly inflamed.

The stomach generally contains a quantity of fluid, sometimes thick and viscid, commonly dark, like coffee-grounds, and then probably consisting of extravasated blood altered by the poison, such as we have often found in animals killed by the concentrated acid.

The state of the membranes of the stomach has been very different in different cases, as may be easily foreseen from what has been said on the comparative effects of a concentrated and diluted acid, and of a late and an early examination. In a girl (7.) who died about thirty minutes after swallowing an ounce of acid, no morbid appearance whatsoever was found in any part of the alimentary canal; yet she scarcely vomited. It must be presumed, though the circumstances are not mentioned, that the acid was much diluted, and the inspection made soon after death. On the other hand, in a girl (10.) who died fifteen minutes after swallowing six drachms, the inner coat of the œsophagus peeled off easily; the rugæ of the stomach were pultaceous, and easily wiped off; the other membranes were tender, and perforated in some parts, so that the contents had escaped from the stomach, and had even attacked the spleen. This description is easily accounted for;—the girl never vomited, and the examination of the body was put off for three days.

It would be fruitless to relate particularly the appearances found in the other cases. Great vascularity has been often observed; sometimes thickening of the mucous coat; sometimes brown and red patches upon it; sometimes charring of the blood in its vessels; often it has been found brittle, and easily removed by scraping; and once it floated in flakes among the contents of the stomach. We cannot pretend to follow our authors farther, when they speak in vague terms of "destruction, gangrene, and putrefaction" of the coats. What is meant by these terms it is not easy to say; for, without doubt, gangrene could never be produced in half an hour; and as little could the coats putrefy in a day or two, especially as oxalic acid is an antiseptic. As to destruction and peeling of the mucous coat, so frequently spoken of, we may venture to hint, that mistakes have often arisen from the presence of a thin dense layer of mucus that sometimes adheres firmly to the inside of the stomach, and resembles the decomposed villous coat.

The precise appearances that may be expected in the membranes will be noticed more particularly, when we treat of the evidence to be derived from them.

III. Little knowledge has yet been acquired of the treatment of this kind of poisoning; for, in truth, it is commonly beyond the control of art before medical aid can be procured. Yet neither the chemical action nor the absorption of the poison is so rapid, as not to be obviated by the prompt employment of certain remedies.

The first object of the practitioner in all cases of poisoning, is to remove the deleterious substance from the stomach. In the case of poisoning with oxalic acid, however, it may be inconvenient or even dangerous to attempt this by ordinary means. For, first, as to emetics, either the vomiting is so speedy and continual that they are unnecessary, or it is never properly accomplished; in which case emetics will too often fail in their effect; besides, during the time lost before their operation, the acid would in general have acted long enough to prove eventually fatal. And, then, with regard to simple dilution, so advantageously used to promote vomiting in most kinds of poisoning, we have seen that it promotes the absorption of oxalic acid; so that it could not be safely used, unless there was a certainty that it was to be followed by vomiting. Lastly, the method lately proposed of withdrawing liquid poisons from the stomach by a tube and exhausting syringe, might be properly applied to oxalic acid; but it should be remembered, that the great rapidity of its action requires a remedy more easily and generally attainable. This remedy must be an antidote or counter-poison.

Antidotes are of two kinds. Some change the chemical nature of poisons before their action begins; others impair or destroy their energy by a counter-action on the system.

The substances proposed to alter the chemical nature of oxalic acid are, the Alkalis, Chalk, and Magnesia.

There is always a material objection to the use of Alkalis for neutralizing acid poisons; namely, they cannot be taken in large quantity without injuring the œsophagus, or even the stomach, if they are given in excess. Were any proof of this required, we might quote what occured in one of the cases of poisoning with oxalic acid [11.], in which the surgeon at first used ammonia, but was forced to abandon it on account of the pain it occasioned in the throat and gullet. In poisoning with oxalic acid, however, the alkalis are inadmissible on stronger grounds; for we have found, that the neutral alkaline oxalates, though they do not corrode the stomach, act through absorption with a force little inferior to that of the acid itself.

Thirty grains of oxalic acid dissolved in 24 parts of water, and exactly neutralized with potass, killed a young rabbit in 17 minutes;* a young cat was killed in 30 minutes by sixty-five grains similarly dissolved and neutralized; and a full-grown dog, 16 lbs. in weight, was killed in 34 minutes by two drachms, exactly neutralized and dissolved in 16 parts of water.

The neutral oxalate of ammonia is equally active. Ninety grains, which contain about 60 of acid, were dissolved in 16 parts of tepid water, and injected into the stomach of a cat. In 5½ minutes the usual symptoms commenced, and it died nine minutes after the injection.†

The symptoms caused by the alkaline oxalates have been the same, in general character, with those produced by the diluted acid. The opisthotonos has seldom been very distinct, except in the rabbit. All the animals became, at an early period, remarkably giddy; and all died in a state of insensibility. The stomach, a few minutes after death, appeared sometimes perfectly healthy, and at other times had a very faint lake-red tint, not referable to vessels. The blood in the left cavities of the heart was florid.

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* Exp. 14.

† Exp. 15.

The activity of these salts is conformable with a law very general, if not universal, though hitherto, we believe, unnoticed by toxicologists, viz. a poison acting through the medium of absorption has its action impaired, but neither destroyed nor altered in its soluble chemical combinations.

The next antidote proposed for oxalic acid is Chalk. Mr Thomson found, that the oxalate of lime occasioned no inconvenience to animals in the dose of two drachms; and that chalk given after the dangerous symptoms had begun, speedily removed them, and restored the animals to health. Thus he gave 20 grains of acid, in nine parts of water, to a cat; and, after the signs of poisoning began, he forced it to swallow some chalk mixture. In ten minutes it became composed, and soon completely recovered.* The results of his experiments have been applied to poisoning in man; and, in one of the cases of recovery formerly noticed, [C. 6th,] the antidote was used with advantage. Its effect is evidently owing to the insolubility of the oxalate of lime.

On the same principle, it was to be inferred that Magnesia would be an effectual counter-poison, since its oxalate is very little soluble.† The following experiment was undertaken to put this to the test, and likewise to discover at what distance of time the antidote may be used successfully. Into the stomach of a young dog, weighing about 24 pounds, we injected two drachms of acid dissolved in ten parts of tepid water, and retained it by a ligature on the œsophagus. In four minutes he strove to vomit, and the efforts were afterwards frequently repeated. At the 11th minute, during the fourth paroxysm, we introduced three drachms of magnesia suspended in water, care being taken to prevent the discharge of the acid. Ten minutes afterwards the efforts to vomit ceased; and, for three hours, he had no other symptom but drooping of the head and dulness. In 25 hours there was more weakness and great langour, but no other perceptible change. He was then strangled, and the body examined immediately. On a few patches the mucous epidermis of the stomach was wanting, and in other places the whole villous coat was thickened and hardened; but two-thirds of the membrane were healthy. A purulent smell was exhaled from the injured surface, but no pus could be collected.* There was in this case evident inflammation; but, probably, the tissues had been simply irritated, not corroded. It is possible, that, before the magnesia was given, enough of local injury had been committed to prove eventually fatal. At all events, it is highly probable, that, in man, magnesia, though an effectual antidote when administered early, will, like other antidotes, be of little use after the delay of a few minutes.

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* Med. Rep. Vol. III.

† An ounce of boiling water allowed to cool upon it takes up about one grain.

Magnesia has, besides, been advantageously given to man. It was given in the case which ended in a fatal nervous fever; and the reporter observes, that the first dose was followed with instantaneous relief from the burning pain in the stomach. It seems to be the best of all the chemical antidotes. It is even preferable to the carbonate of lime, which occasions considerable inconvenience on account of the sudden extrication of a large quantity of carbonic acid gas.† Yet, of course, chalk will be oftener employed, since it is more frequently at hand, and there is no room for delay in the selection of remedies.

On the second class of antidotes,—those, namely, which destroy the energy of poisons by a counter-action on the system,—little need be said. For, although it was to such remedies that the name of antidote was at first given, we now know that few substances of this kind really exist; and no such antidote is known for oxalic acid.

Under this head, however, we may, with propriety, consider certain remedies, internal as well as external, which, though not complete counter-poisons, have nevertheless proved useful in removing or allaying the symptoms. On the whole it appears, from the remarkably depressed state of the pulse, and the little risk of subsequent inflammation, that the most promising treatment would consist in the vigorous employment of stimulants. This plan has been successfully followed in the two cases of recovery already mentioned. In both, after the use of chalk or magnesia, small doses of opium were administered, and the vomiting became soon less violent. One of them then took brandy with advantage, and the other experienced much relief from frictions and hot fomentations. For this last remedy the warm-bath may most properly be substituted. The propriety of employing the more powerful and diffusible stimulants may be questioned. We were anxious, however, to try the effect of ammonia or ether, upon animals; but accident has prevented us from making the experiment. Meanwhile, since there is nothing to contra-indicate their employment, and several circumstances show that the most active stimulants may be useful; and since the cases are generally so desperate that any rational treatment is allowable, we may venture to recommend that they be submitted to trial.

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* Exp. 16.

† Mr Thomson's Experiments in the 3d volume of the Med. Repos.

IV. In reference to Legal Medicine, oxalic acid presents several interesting points for consideration.

The cases hitherto published have been the result of accident only, the acid having been mistaken for the sulphate of magnesia. They have happened chiefly in London, and have too generally arisen from the carelessness of apothecaries. In Edinburgh, though our apothecaries are in the habit of selling oxalic acid, there has hitherto been no accident of the kind; which is enough to show, that, with ordinary care, it is not unavoidable. It is equally unknown in Paris; but there is not the same chance of its occurring there, as the sulphate of magnesia is little used by the French physicians. We are informed by Dr Wagner, Professor of Medical Jurisprudence in Berlin University, that it is also unknown in Prussia, although there the sulphate of magnesia is a good deal used. One of the published cases, however, occurred in Germany (9.)

Various plans have been proposed to guard the public against these fatal mistakes. One person says, that apothecaries should not be allowed to sell the acid at all; another, that they should be obliged to keep it always in solution; a third proposes, that every packet of Epsom salts should contain a bit of litmus paper; and a fourth thinks there would be no risk if the poison were always to go under the name of "caustic compound of sugar and nitre." If these projectors consider the nature of the mistakes that have led to the substitution of one salt for the other, they will probably agree with us that no precaution whatever will prevent them, till the poison is more generally known. Thus, an apothecary's porter-lad sold one morning two packets of oxalic acid instead of sulphate of magnesia, though the drawer containing them was marked "oxalic acid—a poison;" and the master pled in excuse, that the porter could not read.* A man and his wife found a packet lying on the street, and mistook it for Epsom salt; and the wife, happening to need a laxative, swallowed it next morning.† There are scarcely any precautions which can afford security against such errors. It is likely, however, that the danger will soon supply its own remedy; as the public must learn, ere long, that they should always taste their Epsom salts before they use them.

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* London Courier, March 1822.

† Med. Rep. VI.

Though oxalic acid has hitherto been given through accident only, there is much reason to fear it may also be given by design, when its properties are more generally known. Much inducement is already held out to the poisoner by the readiness with which it may be administered; and it will be no small additional temptation, that, in certain circumstances, there will be as much difficulty in detecting it.

The medical evidence will be derived, as in the case of other poisons, from the symptoms, from the morbid appearances, and from the chemical analysis of the contents of the stomach and intestines, of the coats of the stomach, of the vomited matters, and of suspected articles of food.

*a.* On the evidence drawn from the symptoms, little need be said; for, as they are at present known, they can rarely lead to more than a suspicion of general poisoning. Yet sometimes this branch of evidence may be more conclusive. Burning pain of the stomach after taking a medicine, speedy, violent, and incessant vomiting, followed by loss of the pulse, convulsions, insensibility, and death within an hour, are symptoms of no natural disease, and are caused conjunctly by no poison except oxalic acid. But a medical witness can never be called on to give evidence to this effect; for there is not one of these symptoms, not even the burning pain, which may not be wanting; and when they are all present, he is sure to meet with still more satisfactory proof in the morbid appearances and chemical analysis.

*b.* The morbid appearances, so far as they regard the stomach, may be arranged in four gradations, according to the strength of proof they furnish.

1. There may be general or partial abrasion of the mucous epidermis, *gelatinization and translucency of the corion*, or even of the other coat, and charring of the blood in their vessels. Such a state might be decisive of the cause of death; but, at the same time, as the acid will always be found in these cases, it should always be sought for.

2. There may be partial abrasion of the epidermis, or patches where it is only thickened, brittle, diminished in adhesion, of a yellowish-brown or greenish-brown colour, and its pores perhaps very distinct, while the other coats are healthy. The evidence would then prove decisively, that some irritant poison had been given, and *probably* no other poison but oxalic acid would produce exactly the same appearance.

3. There may be simply elevated and defined patches, with a uniform brownish-red or cherry-red blush, or of a scarlet colour, and only in this last case referable to vessels, but without

any other change, even of the epidermis. This state of the stomach furnishes of itself no evidence, but may be useful when viewed conjunctly with other proof, moral or medical.

4. The stomach may be quite healthy, or have merely a very light cherry-red or lake-red blush; which of course furnishes no positive evidence. But it should be remembered, that it also furnishes no negative evidence, which is a point of some importance in many cases, and one too little attended to in general by medical witnesses and medico-legal authors.

If we may judge from what we have seen in animals, and have read of its effects on man, no evidence can be drawn from the state of any other part of the alimentary canal. Yet the poison may sometimes be found in small quantity in the duodenum. The state of the lungs and heart should be noticed: A bright scarlet colour of the lungs, either uniform or in patches, and the presence of florid blood in the left cavities of the heart, though neither inseparable nor decisive signs, may nevertheless be useful in affording confirmatory proof, especially when the stomach is little injured.

*c.* The strongest evidence is furnished by chemical analysis. which, in different circumstances, may be applied to the tissues of the stomach, to the contents of the stomach and duodenum, to the vomited matter, and to suspected articles of food. When the stomach is in the highest state of derangement, the acid will be found abundantly in the tissues, most probably in the contents of the stomach, and certainly in all the vomited matters. If the epidermis alone is disorganized, the acid will not always be found in the tunic, and never but in small proportion;* it may not even be found in the contents of the stomach, but it must be contained abundantly in the first matters vomited. When the stomach is not disorganized, but merely infected and discoloured, there will be no acid in the coats, and probably little in the contents, but a great abundance in the matters first vomited. Lastly, when there is not even redness or brownness of the stomach,—in which case the poison must have been either much diluted or neutralized,—no acid will be found in the coats, and possibly none in the contents, even though there has been no vomiting: but if the patient vomited early, it will be found in the matter discharged. It appears then, that, by chemical analysis, it may always be found in the first matters of vomiting, but sometimes neither in the contents nor in the tissues of the stomach; and that there may even be cases in which, though the patient did not vomit, the contents or coats of the stomach contain no acid, because it has been all absorbed. The conditions required in these cases are, that it be very much diluted or rather neutralized, that the dose be moderate, and that the patient survive several hours.

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* We have subjected the disorganized epidermis to chemical analysis, but without finding any acid in it. It is only when the corion is affected that a sensible quantity will be found in the tunics, after careful washing.

That a poison may prove fatal, and none be found in the stomach after death, although there has been no vomiting, is probably a more general fact in toxicology than medical witnesses are aware of. In the Morning Chronicle for January 8th, an account is given of an inquest held upon the body of a young man, who one evening summoned his companion to his bedroom, told him he had swallowed laudanum, and should be no more before the morrow; took formal leave of him, and left his final requests for his mother and mistress; and next day was found in the agonies of death. The surgeon who examined the body could detect no laudanum in the stomach, and gave his opinion that it could not have caused his death. There may have been other circumstances, which the newspaper report does not mention, and which guided the witness in this opinion. The report, however, grounds it on the poison not being discovered; which is clearly a fallacious reason, since the man lived long enough for the whole of it to be absorbed. Our attention was drawn more forcibly to this fact, in consequence of one of us having witnessed the very same circumstance a few days before, at a judicial examination made in company with Mr Newbigging. From strong moral circumstances, and certain points of medical evidence, there could be no doubt, that, in the case now alluded to, death was caused by laudanum; yet none could be detected in the stomach, for the person had taken but a moderate quantity, and had lived six or seven hours at least.

With respect to oxalic acid, it is worthy of particular notice, that this difficulty or impossibility of detection will occur exactly where the least aid can be derived from the other branches of evidence, namely, when the acid has been previously neutralized, or very much diluted; for, first, there are no morbid appearances; and then the patient may not have been aware that he took any thing unusual. No one can swallow oxalic acid in the ordinary way without being instantly aware of having taken something deleterious. But the alkaline oxalates have a feeble, saline, very slightly bitter, and by no means disagreeable taste, so that they may easily be used instead of common salt for seasoning various articles of food. For obvious reasons we shall not enlarge upon this subject: indeed, it might even have been passed over altogether, were it not evident, that, sooner or later, these poisons must be familiarly known, and therefore should be familiar to the profession before they fall into dangerous hands.

The following process is to be observed for analyzing the suspected matters.

The stomach is to be washed with pure water, and if disorganized, preserved for analysis. The washings, the contents of the stomach, the vomited matter, and the disorganized tissues and suspected articles of food, are to be boiled separately, a little pure water being added if necessary. If chalk or magnesia has been used as an antidote, what remains on the filter (except that from the tissues) is to be preserved for analysis. The filtered fluid is to be tried first with litmus paper, and then by the three following tests—the hydrochlorate of lime, the sulphate of copper, and the nitrate of silver.

1. Decolorize the fluid, if necessary, with chlorine. The hydrochlorate of lime, dropped into a solution containing oxalic acid, or an oxalate, especially the latter, throws down an insoluble oxalate of lime. But it also precipitates with the carbonates, sulphates, phosphates, tartrates, citrates, and with all their acids but the carbonic. The following mode of procedure will serve to distinguish it from these substances. The nitric acid will not take up the sulphate of lime, but a few drops of it dissolve the oxalate. The hydrochloric acid will not dissolve the oxalate, unless added in very large quantity, while two or three drops will take up the carbonate, phosphate, tartrate, or citrate.

2. Decolorize a second portion of the fluid with chlorine. The sulphate of copper precipitates oxalic acid bluish-white, and the oxalates pale blue. This is a test sufficiently delicate, especially if any free oxalic acid is previously neutralized with potass; and it is also a very useful one, since the sulphate of copper does not affect fluids that contain sulphuric, hydrochloric, nitric, tartaric, citric acids, or their ordinary salts. But it precipitates the carbonates, and throws down phosphoric acid, whether free or combined. The oxalate, however, is easily distinguished; for it is insoluble in hydrochloric acid, while a few drops of that acid at once take up the phosphate or carbonate.

3. The nitrate of silver produces a heavy white precipitate with oxalic acid, and still better with the oxalates; and this precipitate, when dried and heated over a candle, becomes brown on the edge, then of a sudden fulminates faintly, and is all dispersed in white fumes. When impure, it deflagrates like gunpowder, and when in too small quantity to be collected, the

filtering paper burns as if steeped in nitrate of potash. This is a very characteristic and delicate test. From a quarter of a grain of oxalic acid dissolved in 4000 parts of water, we have procured enough of the powder to show its fulmination twice. The precipitation alone cannot be trusted to; for it may equally take place with hydrochloric, phosphoric, citric, or tartaric acid, and likewise with the alkalis. But when the test of fulmination is tried, there is no chance of its being confounded with any of these, except perhaps with the tartaric and citric acid. The compounds of these acids with silver, we find, possess properties, that will render the nitrate of silver one of the simplest and most correct tests for distinguishing them from each other, and from oxalic acid. The nitrate of silver becomes brown under exposure to heat, froths up, then deflagrates slightly, with the discharge of white fumes, and a large quantity of dull, ash-grey, crumbling matter remains, of a very peculiar fibrous structure. The tartrate of silver becomes brown, and froths up like the citrate, white fumes are discharged without even deflagration, and there is left an ash-coloured botryoidal mass, encrusted outwardly with silver.

If magnesia or chalk has been given as an antidote during the patient's life, the oxalate of magnesia or lime may be mingled, in the form of powder, with the contents of the stomach, or with the vomited matter. The powdery matter is then to be separated by elutriation from what remains upon the filter during the previous process. If magnesia has been the antidote employed, it is only requisite to boil the powder in pure water for a few minutes, and then subject the filtered fluid to the three tests described above. For the oxalate of that earth is sufficiently soluble to furnish, even with a single ounce of water, a solution in which all the foregoing characters may be observed. If the antidote employed has been chalk, then the powder is to be boiled for 15 minutes with half its weight of pure subcarbonate of potass dissolved in 20 or 30 parts of water. A mutual interchange then takes place, and the solution contains oxalate and carbonate of potass. In applying the tests to this solution, the free alkali is to be previously neutralized with hydrochloric acid, when hydrochlorate of lime or sulphate of copper is to be used, and with nitric acid, before using the nitrate of silver. In the last case, there ought to be as little excess of acid as possible, because the oxalate of silver is soluble in nitric acid.

These tests of oxalic acid are very little influenced by the presence of such animal matter as may exist in the suspected fluid after boiling and filtration. The chief animal principle then preesent is gelatin. Gelatin alone is not precipitated by hydrochlorate of lime, sulphate of copper, or nitrate of silver; neither does it affect the delicacy of the two first as tests of oxalic acid, but when, in very large proportion, it suspends the action of nitrate of silver. Whenever this obstacle is encountered, or if, from any other cause we have left unexamined, this the most decisive of the tests does not give satisfactory results, the oxalic acid may be thrown down with the hydrochlorate of lime, and the insoluble oxalate boiled with carbonate of potass, as just described. This process will probably be always proper when the suspected fluid is deeply coloured; for we cannot decolorize it with chlorine before using the nitrate of silver, since chlorine precipitates abundantly with that salt.

To conclude: Though the description of the tests just given may appear complicated, the application of them in practised hands is sufficiently simple; and the evidence they furnish, though drawn solely from the properties of minute precipitates, is as conclusive as if the acid were presented in its concrete state; since the best mode, perhaps, of recognising it in that state would be to subject it to the experiments we have detailed.

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## II.

### *Case of Fracture of the Os Frontis, with a Loss of a considerable Portion of Brain.* By JOHN EDMONDSON, Jun. Member of the Royal College of Surgeons, London.

AUGUST 2d, 1822.—C. H. 15 years of age, at nine o'clock, *p. m.* when in the act of discharging a brass cannon, too heavily loaded, and crammed with old cloth, &c. the piece burst, and one of the fragments struck him on the forehead, and shattered the frontal bone, bruising and lacerating the integuments to the extent of 3½ inches long and 2½ broad. The fracture was more than an inch longer than the external wound. It commenced on the right side, about an inch from the mesial plane, which it crossed, and passed downwards to the left internal orbitar process, run across the orbit to the external orbitar process, and to where the frontal unites to the sphenoidal bone, then passed upwards through the temporal process, and above the superciliary ridge, and again crossed the mesial plane to meet its commencement on the right side. The anterior lobes of the brain were distinctly visible, and pulsated freely. The fossa for the longitudinal sinus was very apparent. The largest piece of bone that was removed has the frontal spine upon it. This piece measured 2½ inches long by 1¼ broad. Another piece extended from it to the root of the nose, and was nearly an inch square. A third piece from the left temple ¼th of an inch long. A fourth piece consisted of a portion of the superciliary ridge. Many smaller portions of bone of various sizes and forms, in all 32, were also removed by means of the forceps. Several of them penetrated the dura mater, but were easily extracted. More than a table-spoonful of cerebral substance came away at the time. A considerable quantity of blood was lost soon after the accident, but very little during the operation. Messrs Edmondsons operated by carefully removing the fragments of bone. The wound was cleaned, and simple dressings applied to it. The patient was afterwards attended by them, in conjunction with Dr Barnes.

After being put to bed, pulse 88, rather full, feet cold, makes no complaint, and appears disposed to sleep. Half an hour afterwards was sick, and vomited, and was bled at the arm to the extent of ℥ x. At four in the morning, Aug. 3d, pulse 108, moans, and seems uneasy; skin rather hot, and face flushed. V.S. was repeated to ℥ xii.; after which the pulse fell to 96, and he took a cathartic draught of senna, and afterwards a little tea. 12, noon, pulse 96, skin warm; the wound was dressed, and near two tea-spoonfuls of *cerebrum* were discharged; gave correct answers to questions put to him, but had no recollection of the accident; voided a large quantity of urine, of which he was perfectly sensible, but afterwards fainted, and the pulse fell to 76. As the senna had not operated, he took five grains of calomel, and was ordered a draught of infusion of senna and sulphate of magnesia, if the calomel should not operate in two hours. 9, *p. m.*—Pulse 84, thready, face flushed, and hot; has had one dejection. ℥ x. of blood taken from the arm.

4th, 8. *a. m.*—Passed a restless night; complained occasionally of pain and throbbing in his head, and of general uneasiness; pulse varied from 80 to 100; was quickened by his turning over in bed, or making any exertion, and fell when he became composed; no thirst, skin warm, face rather flushed; belly not moved since yesterday; wound of a darker colour, about a tea-spoonful of *cerebrum* discharged; blood taken yesterday not buffy; ordered gr. v. submur. hydrarg. 9, *p. m.*—Has slept much during the day; had one scanty dejection, and has since taken ʒ ii. magnes. sulphat., but expresses great disgust at medicines, and becomes passionate when urged to take them; skin warm, tongue whitish, pulse 96; has taken a cup of tea, and the same quantity of arrowroot; is perfectly rational; a small quantity of brain on the dressing, wound looking better.

5th.—Had an easy night, slept soundly, pulse 80, more thirst, belly unmoved, wound maturating, a very little cerebral substance discharged; ordered gr. v. pulver. scammon. and four hours afterwards gr. v. submur. hydrarg. if the scammony should not operate.

6th.—Had a good night, pulse 80, face more swelled, one dejection, a thin sanies mixed with pus on the wound.

7th.—Passed a restless night, pulse 72, tongue whitish, skin hot, face flushed; no brain on the dressing, a little slough on the middle of the wound; the scammony to be repeated; had some delirium through the day; complained of excessive hunger, and, as very little food was given to him, he was with difficulty restrained and composed. The patient afterwards improved daily; the same treatment was continued; he was kept on the lowest diet, the room darkened, and every noise prevented as much as possible. His bowels required a laxative every third or fourth day for the first three weeks. He afterwards became regular in this respect, and was allowed a more liberal diet. Owing to the tumid state of the eyelids, which were exquisitely painful, the edges of the wound could not be brought together. For some days there was a triangular opening about the right frontal sinus, from which issued a colourless fluid. A fungous tumour also arose from the wound, which, however, diminished as the discharge increased, until the 20th of August, when it rose to a considerable height, and was attended with pain in the head and neck, confusion of thought, hot skin, restlessness, and firm pulse. He was freely bled from the arm, and almost immediately the discharge returned to such an extent as to wet through his pillows and bed-clothes, and all the troublesome symptoms were relieved. After this time he took a pill containing gr. $\frac{1}{4}$ of digitalis three times a day. The discharge abated; the wound healed gradually by granulation, and was completely closed on the 27th of October, though, for some weeks previously, it was not larger than a silver threepenny piece. At present, November 7th, he is in perfect health; the cicatrix much less than was expected, both in length and breadth; but any observer may easily perceive the extent of the fracture from the depression. The eyebrow so far overhangs the eye as to cover the eyelid and eyelashes as well as half of the inner canthus of the eye. Where the superciliary ridge should be, the eyebrow is drawn in, excepting the outer part of it, which appears to rise higher than natural, partly from the contraction of the wound, and also from the drooping of the opposite end near the nose. In short, the eyebrow appears to frown, making a conspicuous depression near the nose at the orbitar process, which can easily be explained by the loss of the ridge and part of the frontal bone, over which the occipito-frontalis moves.

His mental faculties have suffered no injury; he is a good classic scholar for his age, and fond of reading; but is not yet allowed to indulge in his favourite studies so much as he could wish.

*November 7th,* 1822, *Keswick.*

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## III.

### *Case of Cynanche Laryngea.* By ALEXANDER COCKBURN, Surgeon, Edinburgh.

THE frequent occurrence, and often fatal termination of this formidable disease, with the comparative small number of cases that have been published, will, I hope, be sufficient apology for the publication of the following case in the Medical and Surgical Journal.

Mrs ———, ætat. 53, a married lady, with a grown-up family, of spare habit, and delicate constitution, was, on the 24th of September, attacked with common sore throat, viz. the tonsils and uvula swelled and inflamed, deglutition painful, with slight symptomatic fever. The usual remedies were employed, consisting of astringent and acid gargle, ammoniated liniment to the external fauces, cooling laxatives, and spare diet. Under these, with a blister to the throat, the inflammatory symptoms, by the 30th, had entirely subsided; and she was altogether so free from complaint, (with the exception of the blister continuing to discharge), that permission was given to leave her bedroom, to which, during her illness, she had been confined. On the following morning, however, I was sent for to see her immediately, being extremely ill. Unfortunately, not being at home, some hours elapsed before I arrived. On entering the room, I wast struck with the change in her appearance. She was sitting up in bed, labouring under great difficulty of breathing; her voice was hoarse, and scarcely audible; her face purple and bloated, and her countenance expressive of the greatest distress. She complained of severe pain about the larynx, with total inability to swallow, the slightest effort threatening suffocation. These alarming symptoms had come on suddenly during the night, and had since been increasing every hour. On examining the throat, no appearance of swelling or inflammation could be discerned; but, on depressing the root of the tongue, she felt intolerable pain, pointing with her finger externally above the thyroid cartilage as the seat of it. Her pulse was about 130, and small; tongue white, skin hot, and dry; and she was constantly endeavouring to hawk up a tough, stringy mucus. Seeing the nature and urgency of the case, I procured a number of leeches, and applied fifteen of them to the region of the larynx; while I directed her to inhale the vapour of warm water impregnated with vinegar. After continuing this for some time, she was enabled to get over, at intervals, about ℥i. sulph. magnes. in solution. The leeches bled well, which was encouraged by the application of warm cloths. Fourteen ounces of blood were likewise taken from the arm; and a saline mixture, with ant. tart. prescribed; of which a tablespoonful was directed to be given every second hour.

In the evening the symptoms had abated but very little; respiration continued difficult; pulse equal in frequency; and deglutition was attended with the greatest agony. The continued accumulation of mucus in the throat gave her much uneasiness, exciting cough, and a constant desire to hawk up. The blood drawn was cupped, and covered with a buffy coat. A considerable discharge had followed the application of the leeches, several of the orifices from which still continued open and bleeding, and the sulph. magnes. had procured several loose stools. The warm vapour she continued to inhale with apparent relief; as, after its application, the mucus was much more easily brought up, and she was able to swallow a little fluid. The feet and legs were directed to be well fomented, and the mixture continued.

Oct. 2d.—Has had a bad night, slept none, but in constant fear of suffocation, being obliged to be raised from time to time to assist respiration; deglutition very painful; pulse 120, and feeble, tongue foul, belly open; face pale, and countenance peculiarly anxious; voice hoarse and shrill; a blister to be applied along the trachea to the sternum. Cont. mist. u. a.

3d.—Has had no sleep, and appears this morning much exhausted; breathing hurried, and difficult, pulse quick and irregular, tongue covered with a brown crust, deglutition painful. Sulph. magnes. was repeated during the night, which has operated freely this morning; blister has risen well.

℞ Carbonatis ammon. ℈ij. Acid. citric. Q.S. ad satur. Spt. æther nit. ʒss. Syrup. com. ℥i. Aq. font. ℥vi. M. Capiat cochlear. magn. omni 2da hora et habeat haust. anodyn. ant. h. s.

4th.—Has had some refreshing sleep during the night. Breathing and deglutition much easier; has taken some thin arrowroot, with gruel and tea occasionally; blister discharging copiously; pulse 112, and soft, skin covered with a warm moisture, tongue cleaning at the edges, bowels open; is spitting up an immense quantity of mucus, with great relief.

5th.--Slept well; voice more natural, and hoarseness diminishing; breathing soft and equal; an immense discharge of saliva, being obliged to have her handkerchief constantly at her mouth; feels her throat much easier, and swallows fluids with more freedom; pulse 104, and soft, belly open, tongue not so foul. Cont. mist. et haust.

6th.—Has had a tolerable night; breathing soft and easy; pulse 96; tongue much cleaner; skin natural; still considerable flow of saliva; belly rather bound. Habeat infus. sennæ cum supertartrate potassæ ℥ii. omni 2da hora donec alvus respond.

7th.—Slept well; tongue clean, bowels open, swallows fluids readily, but finds difficulty in getting over any thing of more consistence than arrowroot or gruel; takes chicken broth, jelly, &c. Omitt. med.

8th.—Has had a good night, and is in every respect better; blister still discharging; salivary discharge diminishing.

9th.—Slept well; complains of great weakness; still unable to swallow solids; no appearance whatever in the throat of disease; takes beef-tea, arrowroot, jelly, &c. Cont.

10th.—Convalescent. Although from this period her recovery was progressive, yet it was extremely tedious from the very debilitated state to which she was reduced; and a considerable time elapsed before she could swallow solid food, from the tender and irritable state of the parts. In this case, the disease appears to have passed from cynanche tonsillaris into that of laryngea. It did not show itself, however, until the symptoms of the former had entirely disappeared,—as on inspection the morning of attack, no inflammation whatever was to be discerned on the tonsils, uvula, or velum palati, or, indeed, throughout the continuance of the complaint, the inflammation apparently being confined to the larynx from the symptoms present, and likewise from the patient pointing out the seat of her pain and uneasiness. In the treatment, the most decided advantage was derived from the leeches and blister acting immediately on the parts affected, while the constitutional symptoms were relieved by the general bleeding, purging, and diaphoretic mixture. The occurrence of the increased secretion from the salivary glands on the acute symptoms subsiding, was rather remarkable, no mercurial preparation whatever having been given.* Before concluding these hasty observations, I beg leave to make my acknowledgment to Dr Thomson, who saw the patient with me several times in consultation; and likewise to my friend Dr Ballingall and Dr Donald M'Intosh, who took considerable interest in the case.

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* The phenomenon of increased salivary discharge is not uncommon when the tonsils or other parts in the vicinity are inflamed; and it seems frequently to depend at once on an augmented secretion of the salivary glands, and on difficult or obstructed deglutition of that which is secreted.—Editor.

25, *Castle Street,*
*Edinburgh,* 25*th November* 1822.

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## IV.

## *Case of Sphacelus from injury, Successfully Treated by Amputation, with Observations.* By William Mathews, Licentiate, Royal College of Surgeons, Edinburgh.

The treatment of that kind of mortification, which is the consequence of severe local injury in sound constitutions, has of late, amongst many eminent surgeons, become the subject of particular attention. Before the observations of M. Larrey, no distinction in practice was generally made betwixt this species of the disease, and that which arises in consequence of constitutional or internal causes; and most practitioners never amputated in cases requiring that operation, till the progress of the disease was arrested, and a distinct line of separation formed betwixt the dead and living parts. M. Larrey stated the case under consideration as an exception to the general practice; and the cases which he records sufficiently justify him in endeavouring to establish the important principle, "that when mortification arises in consequence of violent mechanical injury of the extremities, and puts life in danger, amputation should be performed, although the sphacelation has not ceased to spread." The success of early amputation in the cases alluded to, is very decided; and though probably insufficient to induce many surgeons to lay aside a practice strengthened by custom, and sanctioned by the authority of Sharpe and Pott, has however had the effect of directing their attention more particularly to the subject; and as it will thus be submitted to the scrutiny of experiment, Larrey's proposal will be either corroborated, or rejected as useless or hurtful. More lately, the favourable issue of the cases of Mr Lawrence has added strength to Larrey's practice, and promises to make it more generally adopted.

Mortification, from mechanical injury, is at its commencement, unequivocally of a local nature; but the rapidity with which it advances and affects the system, is often very surprising. From the celerity with which the system is affected, it is obvious that amputation will not be done under favourable circumstances, unless promptly performed; as by the delay of a very inconsiderable space of time, the powers of the constitution may be irreparably exhausted; nor would it be fair to deduce unfavourable conclusions from an operation undertaken at that period. That amputation may be successful, it is necessary that it be early performed; and, even were it sometimes to fail, under favourable auspices, we ought not to draw from thence an insuperable argument against the practice; as, in a disease of such a fatal tendency, not the general, but the most frequent success is sufficient to establish the mode of treatment. In the present case, amputation ought the more readily to be concurred with, as the other resources of medicine are scarcely sufficient to afford a hope of stopping the progress of the disease, or of enabling the system to withstand its effects.

The authors who support the propriety of delaying the operation till the line of separation be distinctly formed, seem to be much afraid of it inducing additional irritation and debility, when performed before that period. This objection seems more specious, than well grounded; for if properly performed, and in due time, the system is not likely to suffer much from the mere effects of the operation. In the cases which Larrey and Lawrence record, amputation seems to have been followed, with the similar good effects, subsequent to that operation, performed in consequence of incurable white swelling. In the following case, the operation was attended with the most quick and beneficial effects.

Early in the morning of the 16th May, 1821, I was called in consultation, on the case of a young man, who had ten days previously received a violent compound fracture, of both bones of his leg. It appeared, from the account that I obtained, that the end of a weighty cask had fallen from some height on the outside of his leg, above the middle, had penetrated the soft parts to the bones, and forced their upper fractured extremities through the integuments of the opposite side. The wounds thus occasioned were extensive, and bled profusely; and the anterior tibial artery having been divided, required to be secured. The bones much comminuted, the soft parts extensively contused and divided, the second artery in the limb tied, and the situation of the patient, who was on ship-board,—all formed a complication of unfavourable circumstances, which precluded any well founded hopes of saving the limb, and seemed to indicate the necessity of its speedy removal. Amputation was accordingly proposed; but the man refused to submit to it, with persisting obstinacy. The leg was therefore laid in as easy a posture as possible, and the usual treatment of compound fractures adhered to. Notwithstanding every attention, the inflammatory symptoms became severe, the leg much swollen, and the discharge from the wounds thin, profuse, and of a bloody colour. 15th May (9th day after the accident), was marked with an aggravated severity of the fever, and a considerable increase of the pain, which he described as being of the scalding kind. On undoing the bandages, the discharge was noticed to be more profuse than usual, and of a very offensive smell. A considerable portion of the limb displayed a dull leaden appearance, and the cuticle was found to be detached from the skin, by the intervention of a thin ichor. True sphacelation had succeeded these precursors, and, I was informed, was rapidly extending.

Upon examination, it was found that the sphacelation had extended beyond the place of fracture, and had reached within a short distance of the knee-joint. The skin above the completely sphacelated portion, exhibited a dull leaden appearance, which insensibly terminated further up in the natural colour. The insertion of a director from the wound in the inner side, could distinguish the detachment of these discoloured integuments from the subjacent muscles, up to the tuberosity of the tibia; the muscles being doughy and soft, and the cellular substance distended with gas. The sphacelus was of a dark brown appearance, except in the vicinity of the wound, which was of a dirty rid, and of a very soft consistence, as it was forced into a pulp by a very moderate degree of pressure. The pulse quick, in a state of compressed hardness; heat of the surface variable, and the face and the breast partially bedewed with a clammy moisture; the tongue dry and furred; thirst urgent; his eyes were sunk; he was afflicted with great restlessnesss, and at times delirium.

Such being the circumstances of the case, the mortification rapidly extending and wasting the powers of the patient, amputation was resolved on, as affording the best, if not the only chance of saving life; and as the sphacelation had involved the parts almost as high as the knee, it was done as near above that joint as possible. After the operation, a full opiate was administered, and the patient directed to be kept as quiet and easy as his situation would admit.

17th May.—Has passed a good night; restlessness considerably abated; pulse still frequent, but softer than yesterday, tongue furred, bowels costive. Habt. statim ol. ricini ʒvi. light diet; opiate at bedtime. 19th.—Considerably improved. Castor oil excited some fetid stools of a black colour. Tongue more clean; bowels regular; some desire for food;

little thirst or heat of skin. 20th.—Continues to improve. Dressed the stump; discharge gleety, and some sloughing in the cellular substance. Appetite good.

I was sorrow that I was deprived of an opportunity of observing the further progress of the case. However, no bad symptoms supervened; the sloughing soon subsided; the ligatures were all detached before the 20th day; and on the 27th June, when I saw the man, he had greatly regained his former healthy appearance, and declared that he felt as well in health as ever he was.

*Hatfield, by Doncaster, 26th October,* 1822.

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## V.

## *Case of Tic Douloureux, successfully treated by Purgatives.* By ANDREW WILSON, M. D., Senior Physician to Kelso Dispensary.

In my Letters on Morbid Sympathy, published in 1818, when remarking on the subject of chronic rheumatism; having there expressed an opinion, that the disease designed tic douloureux, is a morbid sympathy, depending on a primary cause, seated in the digestive organs; mentioning, at the same time, some instances of recovery, by a treatment founded on that principle. In corroboration of this idea, I take the liberty at present of transmitting to you the accompanying case, as a further demonstration of the origin of that excruciating and unmanageable disease, if you choose to give it a place in the Medical Journal.

1822, July 5th.—Peter Storry, a farm servant, æt. 18, is affected with tic douloureux in a most severe degree. He describes the pain as always commencing at a point in his upper lip, on the right side, where it is joined by the alæ of the nose, from which it spreads upward with great violence, shooting along his cheek to his temple, and over the whole side of his head, the pain being so violent as to make him cry out in great agony. It attacks him repeatedly in the course of the 24 hours, in paroxysms of several hours duration; and even during the intervals, the pain remains with very considerable severity. He has been subject to occasional attacks of the same kind, in an inferior degree, for 16 years, of shorter duration than the present, and with intervals of some weeks, and even many months at a time; and he has observed, that exposure to cold and wet weather very readily excite a return. The present fit of the disease came on about the middle of May last, without his being able to ascribe it to any occasional cause. Since which time, to the present day, his time has passed under constant severe pain, and part of every day under intense torment.

At present his pulse is natural, and his skin cool. His tongue is loaded with a thick membranous fur, in so far as it is visible, as the smallest motion of his tongue or lips, in attempting to speak, or take in food, is certain of exciting a paroxysm; in consequence of which deprivation, together with the want of sleep, his strength has become greatly impaired.

He has been following medical advice at home for six weeks past, during which time he has used laxatives freely, chiefly saline, with some doses of calomel; he has also had an emetic or two, which did not operate freely. These have been followed with carbonate of iron in considerable quantity, viz. one drachm thrice a day for two weeks. Of late, this has been changed for the arsenic solution, taken freely without any benefit.

On the 5th of July, he was admitted a patient in the Dispensary here, and came to be under my care. It appearing quite certain, on examination, that his digestive organs remained loaded with an accumulation of morbid contents, and believing that the primary cause of his misery still existed there, notwithstanding the extensive evacuations which had been procured by the lenient purgatives already administered, it became necessary to have recourse to some more powerful remedy. Accordingly, with the concurrence of the other medical gentlemen, he was ordered to take the following bolus next morning. Calomel gr. vij. tart. antimon. gr. i. M. ft. bolus. By this dose he vomited a considerable quantity of dark-coloured corrupted bile, and had three very offensive stools. He slept a little in the succeeding night, and passed the next day with some mitigation of his complaint, in thus far, that although the lancinating pains shooting from his lip along his cheek and temple, were as frequent as ever, yet they were less severe, and he had no regular excruciating paroxysm.

The bolus to be repeated every other morning, also to receive an enema, with 50 drops of tinct. opii every night.

By the second and third doses, he vomited dark-coloured bile each day, and voided offensive stools, mixed with a great quantity of hard scybala. By the fourth and fifth doses, he continued to vomit unhealthy looking bile, mixed with viscid phlegm; he also passed offensive stools mixed with scybala as before. He is now much relieved, being able to speak, and to take food without exciting a fit of pain, and rests well in the night; his tongue is considerably cleaned from the thick fur, and he is able to walk about in his room. There are some slight returns of pain along the side of his face, but no regular paroxysm for eight days past. By the sixth and seventh doses, the discharges were less offensive, wearing a more healthy appearance; his tongue is clean, and his night rest natural; the occasional transient pains slight, and less frequent; is still gaining strength, being now able to walk out. July 29th.—Ordered to omit the mercurial bolus, to continue the sedative enema, and take pulv. cinchon. ℥i. every twenty-four hours, in small doses, with an opening pill occasionally, if necessary. August 10th.—Continues better; is permitted to return home. Continue the p. cinchon., with i. gr. of opium every night, in place of sedative enema. September 1st.—Has used his medicine regularly; is much stronger, being now able to undertake easy work. Ordered to omit the cinchona, and use the following tonic electuary. Limat. ferri ℥i. Crem. tart. ʒiij. Pulv. cinchon. ℥iss. Pulv. zingib. ʒiss. Syr. commun. ℥ij. ft. elect. A small tea-spoonful three times a day. September 15th.—Continues free from pain, and has acquired a very healthy appearance. October 2d.—Continues well. Dismissed.

*Kelso, October.*

## VI.

## *Observations on the Regeneration of Bone, in Cases of Necrosis and Caries, being a Supplement to a Memoir on the same Subject, inserted in the Edinburgh Medical and Surgical Journal for January* 1822. By R. Knox, M. D. Member of the Wernerian Natural History Society, and of the Medico-Chirurgical Society of Edinburgh.

In the observations submitted to the public in January 1822, will be found the brief details of a theory of Necrosis, * or rather of the regeneration of bone in cases of necrosis, founded on Pathological Anatomy, and on careful, repeated observations of experiments made by nature herself, daily presenting themselves in surgical practice, but which, from the frequency of their occurrence, are generally overlooked.

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* It has been usual for authors to comprehend, under the term *Necrosis*, the death of a bone and its replacement by a new one. I have already shown, that the regeneration of bone may, or may not take place, and shall therefore continue to employ the term *Necrosis*, as meaning simply the death of a bone, or of a portion of bone.

The subject of Necrosis was, as it were, forced on my attention; for in military hospitals, most cases of fractured limbs, which the surgeon, from a variety of reasons, may have endeavoured to save, become ultimately cases of necrosis. In this ample field of observation, I collected some years ago most of the facts and cases on which was founded the very simple theory of the regeneration of bone, proposed in the memoir already alluded to. Since the period of its publication, I have examined the Hunterian Museum of London, that belonging to the School of Medicine at Paris, and a collection of pathological anatomy still existing in the Veterinary School at Alfort; and, through the politeness of Sir James M'Grigor, an excellent collection of pathological specimens, collected by his care, and placed in the Military Hospital at Chatham. In these anatomical collections, exist a few specimens of much interest, two of which I shall describe in the course of this Essay; but it may be worth while previously to investigate briefly the history of necrosis, and to inquire into the opinions of very celebrated men, who, in sketching the mode according to which bones grow, and are regenerated, are supposed to have differed so widely from each other.

Though we owe to Mr J. Hunter most of those sound and correct notions on physiology and pathology which distinguish British surgery from all others, candour obliges me to state, that the observations of Haller and his pupil Detleff on the formation of callus and growth of bones, do not admit of being called in question. With a slight variation in terms, a similar explanation of these phenomena has been offered the public in a variety of forms, too numerous to be noticed. In thus admitting the accuracy of Haller and Detleff as observers, we are not bound to put faith in their explanations, nor in the extension of their doctrines to all cases. Thus, though it may be true, that, in the chicken, the periosteum does not contribute towards the formation of bone, we know that it is different with man. In stripping the bones of the human fœtus of their periosteum, the most careless observers must have remarked the facility with which the membrane may be removed; and hence, in early years, a partial destruction of periosteum does not necessarily give rise to an exfoliation from the surface of the bone; but in the adult or aged, the death and separation of an external lamina of bone will generally follow the destruction of its corresponding periosteum, to which the want of pliability in the various tissues of the aged may somewhat contribute.

In the history of the formation and growth of callus, as given by Haller from the experiments of his pupil Detleff, there is much accuracy of observation, truth and beauty in the details, and clearness and precision in most of the conclusions. But whoever carefully peruses these experiments will, I imagine, be satisfied, that they are applicable to cases of simple fracture only; that they do not explain the reuniting process in compound fractures, and can never be applied to the disease called necrosis, or to the regeneration of bone, which usually happens to a greater or less extent as a consequence of this disease. This eminent writer was, moreover, unfortunate in the employment of the term *callus*, and of some mechanical explanations which have been singularly misrepresented by his antagonists.

Some years afterwards, Bichat in his "Anatomie Générale," adopting a very confined and partial view of the subject, boldly asserted that Haller was wrong. He next describes the manner in which he supposes fractured bones are reunited; a description applicable only to compound fractures. He does not condescend to detail the experiments (if any were ever made), which led him to these conclusions. Hence we are necessitated to conclude, that being but little acquainted with the subject, he resorted to those sweeping analogies, which form at once the merits and defects of his writings. *

The description given lately of the formation of callus by some experimental authors, agrees very nearly with the opinion entertained by Hunter, Haller, and other writers of their times. They divide the phenomena into three stages; but this must have been done merely for the convenience of description, since no such exist in nature. In the first period of simple fracture, they have ascertained, † that there is an effusion of blood and coagulable lymph; that the colouring matter of the blood soon disappears; and (what might very readily have been imagined, independent of all experiment), that the periosteum, medullary membrane, and other soft parts, speedily reunite. Now, all these appearances were well known, and had been well described, partly by Haller, Detlef and others, but most minutely by Mr J. Hunter and his pupils. Modern experimenters however imagine, that the fluid effused between the fractured extremities differs from the mere coagulable part of the blood, which they suppose to have been absorbed;—a conjecture which, when proved, would give support to the opinion of Haller.

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* What, for instance, can be fancied more incorrect than the following passage, in which he endeavours to refute the experience of ages, because it is at variance with some one of his ill-digested theories? "Recouvrez avec la peau l'extremité osseuse du moignon amputé; déjà celle-ci suppurera, que l'os commencera à peine à se ramollir; aussi les bons practiciens ont-ils renoncé à ces pretendues reunions par premiere intention, si vantées à la suite de l'amputation à lambeux." §

† See "Additions à l'Anatomie Génerale de Bichat, par Beclard."

§ An. Gen. T. III. p. 135.

In the second stage, they describe an inflammation and swelling of the periosteum and soft parts, and hence arises a tumour perceivable externally. A coagulable matter (which I suppose to be the same with that described by Hunter, Haller, and others) is effused in abundance under, and in the tissue of the periosteum, which, as they say, finally becomes osseous, prior to the conversion into bone of the remaining coagulable fluid occupying the space between the fractured extremities. But the fact is, that there is an affected nicety of description in all this, a distinction without a difference, and an effort made to conceal, by the employment of vague and novel terms, the close resemblance of the description to that of former physiologists. The more external parts of the effused fluid, which is afterwards to be converted into bone, will naturally ossify first, since the periosteum and surrounding soft parts will speedily heal and re-establish the continuity of the vessels; whilst the portion of fluid situated betwixt the fractured extremities of the bones, will longer retain the semi-cartilaginous state. Again, the external part will pass almost at once from the semi-fluid to the osseous state, because vessels containing red blood pass readily to it, from the neighbouring soft parts; whereas the deeper seated effused lymph will have its vitality supported at first, by vessels containing colourless fluids only, and which admit of red blood, and consequently of ossification only at an after period.

Thus, we find, on a careful analysis, that there is nothing either interesting or novel in these pretended researches into the healing of fractured bones,—nothing which had escaped the notice of preceding ages.

In the regeneration of osseous matter, which accompanies the death of the bone in necrosis, many have supposed that the processes employed by nature were entirely different from those employed in reuniting compound and simple fractures. They adopted the opinions of an ingenious theorist, Duhamel, and have maintained them with extreme obstinacy, though there probably does not exist in the world a pathological specimen in the least confirmative of so false a theory.

It cannot be necessary to notice here, at any length, the opinions which have arisen out of the experiments of Duhamel and a few other experimental physiologists. They seem reducible to the following heads; viz.

Those who maintain that the new bone, in cases of necrosis, is formed between the layers of the periosteum, an opinion most amply refuted by an examination of numerous pathological pieces, in which the periosteum was stripped off the new bone, without there adhering to it a single osseous particle; and by the uniformly observed fact, that the osseous granulations in necrosis arise from the surface or edge of that portion of old bone still remaining alive, and in no instance from the periosteum or soft parts.

The experiments moreover of Dr Macdonald * show, that in pigeons, the internal periosteum is not formed till after the formation of the new osseous tube.

Others affirm, that the new osseous tube is formed by the vessels of the periosteum; that these secrete bony matter on the surface of the periosteum, which matter afterwards constitutes the tube destined to contain the dead bone, and support the limb. But a single case of compound fracture refutes these theories, which were founded originally on the experiments of Troja and Macdonald. Whilst we admire and praise the efforts made by these and other experimentalists, to advance the boundaries of physiological science, it is nevertheless with very painful sensations, that their works are perused; the mind shudders at the revolting tortures uselessly inflicted on the brute creation, and deeply regrets them. A little reflection on the part of those experimentalists, would have shown how vain, useless, and incorrect, must be most conclusions drawn from experiments on pigeons and other animals, belonging to a class so widely different from man. These experiments have instructed us in the pathology and physiology of pigeons and chickens; they have shown, that after destroying the life of the bone, a new one will be produced; they have even shown more (thus exceeding the expectation and puzzling the minds of their institutors;) they have demonstrated, that in pigeons new bone is formed when both the original bone and periosteum have been removed;—a fact, as Dr Macdonald observes, very difficult to explain.

In the experiments which Mr Cruveilhier says he performed on the rabbit, we find that the periosteum was detached to a great extent from the bone; that threads of cotton were introduced between the membrane and bone, during all which, great violence must have been done to both; yet the membrane reunited to the bone, which did not in any instance die. Hence we see of how little importance in some of the mammalia is any

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* Disputatio Inauguralis De Necrosi et Callo, Edinb. 1799.

individual portion of periosteum in supporting the life of the corresponding portion of bone.

It seems reasonable that the performing of such experiments should cease. They are generally inapplicable to human physiology and pathology, more particularly those made on animals differing so widely in structure and vitality as man and birds. As well might we hope for the regeneration of human limbs after amputation, arguing from the success of a few such experiments on the lower tribes of animals. *

Finally, some have imagined that the soft parts generally surrounding the bone, reproduced another on the death of the original one; but I have already shown, that, were this the case, osseous matter ought to be found deposited in various places of the secreting surface, whereas we always find the new osseous secretion to proceed from the nearest healthy portion of the old bone, and from its extremities in those cases where the whole shaft has perished.

The manner in which new osseous matter shoots from old bone, appears to me sufficiently simple. The vessels supplying the remaining healthy old bone, whether proceeding to it from the periosteum, surrounding soft parts or otherwise, become increased in size, and perhaps in number; granulations arise on the surface, which, by degrees becoming firm, are afterwards converted into bone. These are found to shoot in various directions, but chiefly downwards and upwards in long bones, often separating widely from the surface of the dead bone, when not retained by careful bandaging. They occasionally stretch across, forming arches, and enclosing the dead portions of the original bone,—an appearance of frequent occurrence in compound fractures, by whatever cause occasioned. When arising from a fall or blow, sufficient to break, but not destroy the vitality of the bone, it is probable that compound fractures unite much in the same manner as simple ones. For as bones are slow in going through the various processes from health to disease, so the lacerated soft parts may suppurate and heal by granulations, whilst the bone will unite chiefly by what must be considered the first intention.

The manner in which the new bone acquires a periosteum, is still a subject of much interest. In the examination of a very few specimens, I have observed a thin membrane covering the new osseous granulations; but I know of no facts to decide

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* Dr Macdonald found, that the most cruel tortures inflicted on the extremities of pigeons, in no instance produced the suppurative inflammation. Yet he supposes, or rather asserts, that the vitality of these animals is similar to that of men.

whence this membrane proceeds. It is not unlikely that it is supplied by the cellular texture either of the new bone, or of the surrounding parts; and that in some instances it may be merely a prolongation of the old. New skin on ulcers does not always grow from the surrounding healthy edges; which fact may be applied to the formation of new periosteum.

I promised, at the commencement of these observations, to give an account of two very celebrated pathological specimens, and which have been supposed sufficient to overthrow all theories of necrosis which did not coincide with that of Duhamel.

In Plate I. will be found two views of a necrosed clavicle presented to the French Academy of Surgery, by D'Angerville; and with it a description, refuted by the specimen itself, which fortunately still exists. It is there stated, that an entire new clavicle was regenerated, which the reader will observe, by an inspection of the drawings, not to be true; for the whole acromial end of the original clavicle is present, as well as a portion of the sternal extremity, from which two points proceeded the osseous granulations ultimately forming the new bone; differing indeed widely from the former, but yet amply sufficient to supply its place. The specimen is considered *unique* by Baron Percy; and perhaps there does not exist a more perfect specimen of regenerated bone.

The figures 1, 2, 3, in Plate II. were taken from a necrosed scapula in the museum at Alfort. The scapula is that of a horse, and shows, very beautifully, a vast regeneration of bone; but not, as some have erroneously imagined, the formation of an entirely new one. An assertion like this must have arisen from singularly careless observation; for, on a reference to the Plate, it will be found that the glenoid cavity, and head and neck of the original bone, retained their vitality, and gave rise to the formation of new osseous matter, which finally enclosed in a case about two-thirds of the original bone.

Fig. 1. Drawing of the necrosed scapula, now in the Museum at Alfort.

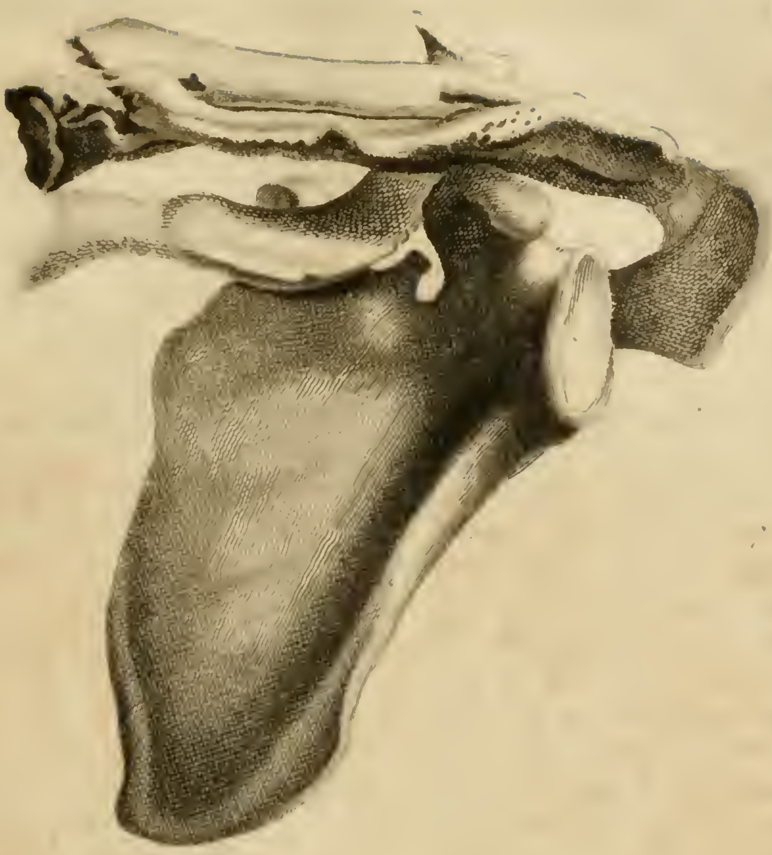
A, Head and neck of the old bone, which had retained their vitality, and from which the new osseous deposition proceeded.

B B, Spine of the old bone, necrosed.

C, Body of the old bone, necrosed.

DD, Deposition of new bone.

Fig. 2. Internal surface of the same scapula.



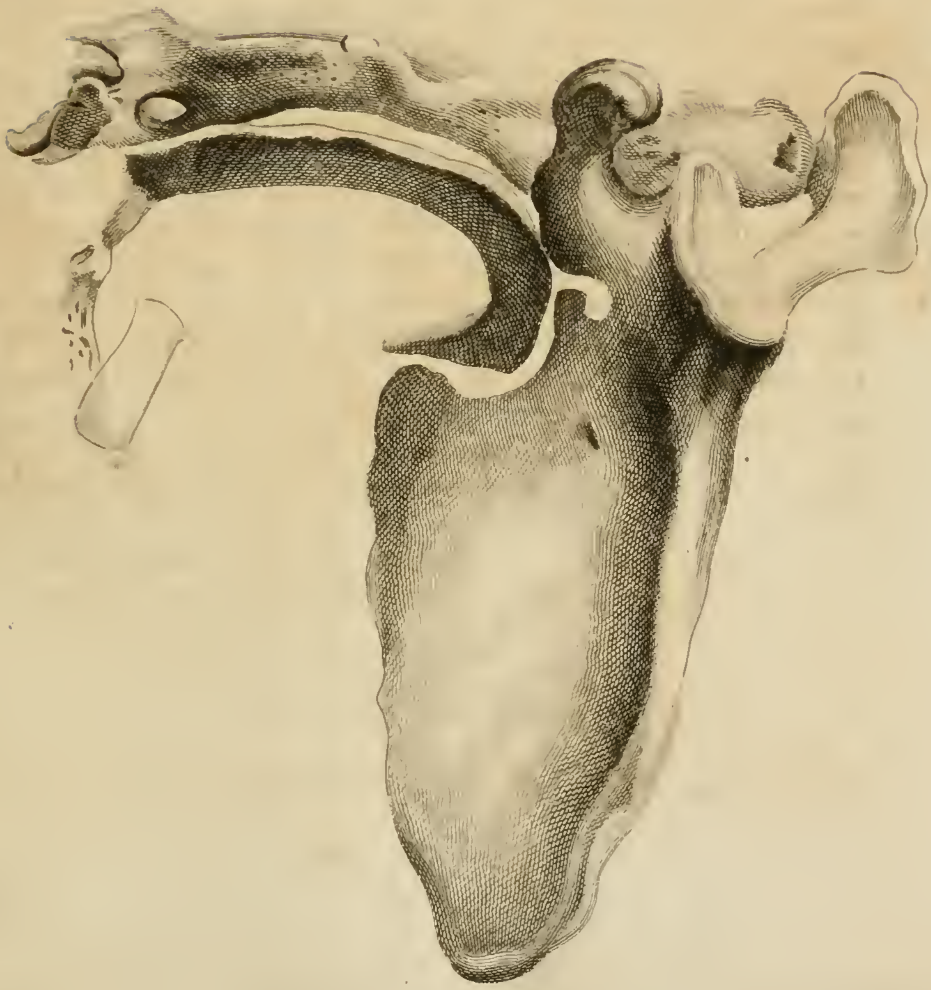
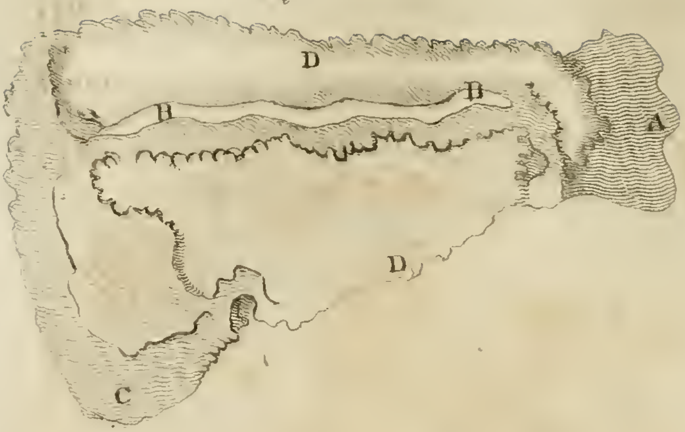


Fig 1



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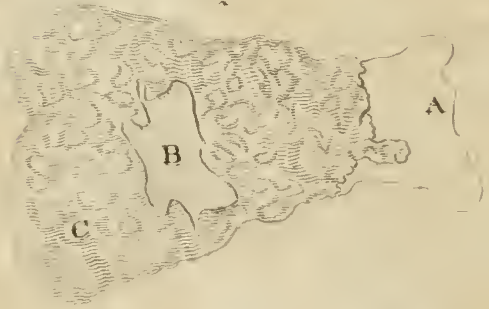

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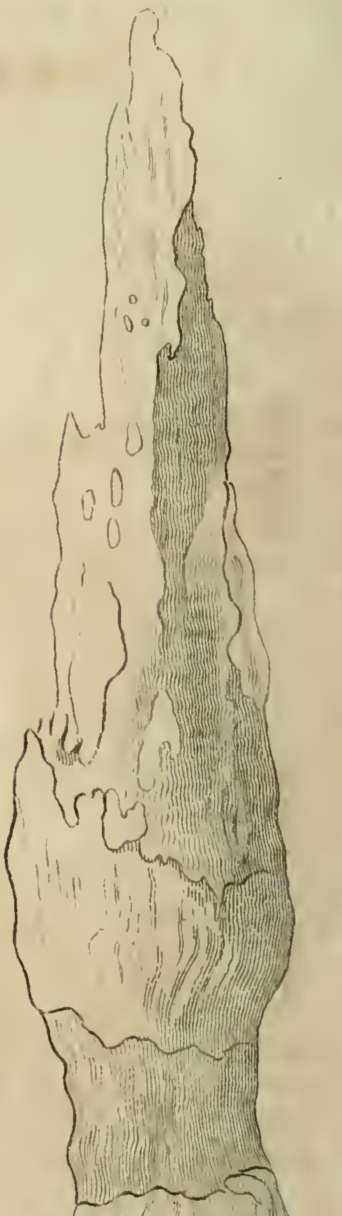

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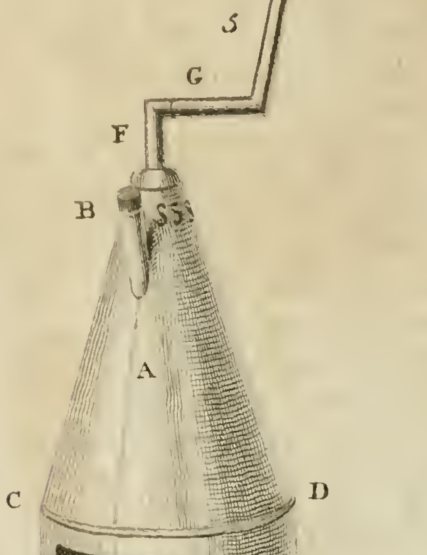

A, Head and neck of the old bone which had remained alive.

B, A portion of the necrosed or dead scapula, seen through a perforation in the new osseous deposition.

C, New bone.

Fig. 3. Shape of the necrosed portion of bone removed from its case of new bone, showing that the whole head, neck, and upper part of the body of the old scapula had remained alive, and that by these the new bone was formed.

In fig. 4. I have represented the form which the necrosis arising in bones after amputation generally assumes; it is intended to illustrate practical opinions detailed in the former Memoir, and more particularly Case IX., extracted from the Memoirs of the French Academy.

*Edinburgh*, 1st *July*, 1822.

## VII.

## *Description of an Improved Apparatus for Inhalation of Vapour in the Cure of Diseases, in a Letter to the Editor.* By John Gairdner, M. D. Fellow of the Royal College of Surgeons, Edinburgh.

I beg leave to introduce to the notice of your readers a very simple instrument for the inhalation of the vapour of hot water in the cure of diseases, which I have for some time past employed in my practice, and which appears to me to possess very considerable advantages over every other apparatus for the same purpose, that I have yet met with.

Most of the inhalers at present in use act on the principle of causing a stream of air to pass through a quantity of hot water in the body of the apparatus, and thus charging it with heat and with aqueous vapour. This is the principle of Mudge's inhaler, which is the one that used to be thought the best; as well as of Mr Hercy's more recent invention, now more commonly employed, and of others which might be mentioned. All these contrivances seem to me to be open to this objection, that they require a very considerable effort of the muscles of inspiration in using them; for, the air entering the apparatus, has to overcome the resistance of a column of water in the tube by which it enters, the amount of which resistance varies according to the distance between the inferior extremity of the tube and the surface of the hot water. Now, this resistance is overcome solely by the effort which the patient makes to inspire; for the rarefaction which is thus produced of the air in the upper part of the inhaler, occasions a quantity of the external air to rush into the vessel by means of the atmospherical pressure. The force requisite for this purpose is so considerable, that, if the inhalation is practised for any length of time through an instrument so constructed, even in a sound state of the chest, the effort is felt to be fatiguing; and, in the diseases of the respiratory organs, it is so painful as absolutely to prevent the possibility of using these instruments in many of the cases in which the inhalation of vapour as a remedy is most particularly indicated; so that I have frequently seen patients of their own accord lay aside the inhaler, and resort to the familiar plan of inhaling through the tube of a funnel inverted over a basin of hot water. Repeated experience of this fact first led me to think of devising an instrument free from this objection; and I am persuaded, that many of those, who would be most benefited by inhalation, are deprived of this benefit solely from the want of a more perfect instrument; for it is plainly those whose complaints are *most* severe, and who, therefore, are *most* in need of the relief which remedies are capable of affording, that are *least* capable of overcoming the resistance occasioned by the common instruments.

The expedient of the inverted funnel is entirely free from the above objection, though the rapid cooling of the water renders it very inefficient. The instrument which I am now about to describe, possesses all the advantages both of the common inhalers of the inverted funnel, while it is free from their defects. It consists of a kettle, partially filled with hot water, which is kept boiling by the flame of a spirit-lamp placed under it. From the upper part of it a tube issues, which is connected with a longer tube, in such a way as to be capable of being bent at different angles, to suit it to the position of the patient. The extremity of the long tube is wrapped with a piece of linen, to prevent the heated metal from burning the patient's lips. It is then received into his mouth, and he inhales into his lungs the steam generated by the boiling, mixed with a large quantity of air, which enters freely by perforations in the top of the kettle.

The whole apparatus is constructed of tin, and may be had at a moderate price. Several of them have been made by my directions by Mr Steele, 86, Rose-Street, who is fully acquainted with their form and dimensions.

The utility of inhalation as a remedy is, in certain diseases, so great, as to entitle it to be more generally adopted than it is at present. Catarrhal, asthmatic, and pneumonic affections, are those to which it seems most useful. In all of these an expectoration of phlegm occurs, which is often difficult, and attended with severe coughing and laborious breathing. The inhalation of hot vapour, by expediting and facilitating the process of expectoration, has a great effect in relieving all these symptoms. This is remarkably the case in the asthmatic paroxysm, which may often be shortened by this easy resource, and the patient saved from a great deal of suffering; but so difficult is the use of ordinary inhalers to persons labouring under asthma, that they generally employ the less efficacious method of the funnel, which I have already alluded to.

Inhalation of vapour has also been employed in quinsy and in phthisis pulmonalis. In the former, I believe, that all its salutary effects will be better obtained by means of gargles and diluent drinks. In the latter, I have not found it generally serviceable. A cool dry air seems to be much more suitable to the ordinary states of the disease; but when it is combined with catarrh, or inflammation of the mucous membrane of the windpipe, and of the cells of the lungs, the inhaler may be had recourse to with advantage. From the great expectoration which occurs in pertussis, I think it probable that it might be serviceable in that disease; but of this I have no experience, the patients being generally young, and not easily persuaded to employ an expedient of this description.

Figure 5th Plate II. will explain the construction of the inhaler. A is the kettle, which has a number of orifices in the upper part of it for admitting air to mix with the steam as it rises, and which is furnished with a spout, B, for admitting the hot water. C D is the bottom of the kettle. Under it is a hollow space, open on one side, for admitting the spirit-lamp E. From the top of the kettle issues the tube F G, which is adapted at the point G to the tube G H, the former sliding a little way within the latter. The tube G H is thus capable of being turned on the point G in any direction which may best suit the posture of the patient. The following directions must be attended to in using it. The lamp is to be taken out, and a quantity of hot water put into the kettle to warm it, and poured off again. The kettle is then to be filled about half full of water, quite boiling. If, in consequence of the neglect of these precautions, the temperature of the water is under the boiling point, the lamp will not have power sufficient to make it boil.

The issue of steam is regulated by the lamp, which, if properly trimmed, ought just to produce vapour of the requisite degree of heat. By shortening and compressing the wick, or by lengthening and dispersing it, the boiling may be repressed or accelerated, and the vapour received into the lungs rendered cooler or hotter according to circumstances. The extremity, H, of the long tube must be well wrapped with linen before it is used, in such a way as not to obstruct the tube, while it defends the lips from the hot metal.

# VIII.

## *Medical and Meteorological Notices, with reference to the State of Health and Disease in Newcastle-upon-Tyne, from November* 1821 *to December* 1822. By HENRY EDMONDSTON, A.M. Surgeon.

THE month of *November* 1821 was in general mild and pleasant, but with some very heavy gales, or rather hurricanes, from the westward, and several rainy days.

During *December* of the same year, the weather was variable; high winds from the west, and, more than usual, from the S.E.; frequent falls of rain, such as had not been observed for many years, the water pouring down in sheets or masses; the temperature of the air singularly mild, even in the night-time, the thermometer never having been seen below the freezing point. About the 16th and 17th the atmosphere was so close, that fires, seldom unwelcome so near Christmas, felt oppressive. Days intervened about the solstice that would have done no discredit to May or August. Bees, flies and moths, were abroad and vigorous.

Scarlatina prevailed. One case was chiefly remarkable, from the circumstance of the parents reporting, on the authority of their medical attendants at the time, and without the least probability of mistake, that the patient, then a child, had assuredly undergone the disease. The present attack was complete in all its parts. During the first days of convalescence, there supervened suddenly, and without any assignable cause, severe pains of the wrists, swelling, and inability of motion; no discoloration, and but little increase of fever; some touches of pain in the shoulders, with slight headach, and epistaxis. I have met with a good deal of the same kind of sequelæ of scarlatina, while I have but rarely seen the anasarca so often consequent on it, probably from the treatment being so much cooler and freer now than formerly. Two other cases of the same disease, the one advanced, the other incipient, had been set down by the parents and neighbours (armed as they are at all points with Buchan's Domestic Medicine,) as measles;—a mistake by no means uncommon.

Some bowel complaints appeared with bilious derangement, vomiting of green bile, occasional tenesmus—no abdominal tension or tenderness—generally looseness, sometimes the contrary, pulse frequent and sharp, dry, collopy tongue [*] and raging thirst, with occasional febrile discomposure. They yielded readily to the milder cathartics, with anodynes, &c. interposed.

With the slight exceptions just mentioned, there was very little sickness, though the weather, for many weeks, had been what is commonly considered unwholesome and unseasonable. [†]

*January* of the present year (1822) came in rather cold and excessively wet, with some east winds. For the last ten years I have not observed the ground so soaked; yet the pools, generally full in winter, were far from being filled. The summer, but especially the autumn, had been very dry. Upon the whole, however, the month, and especially towards the end of it, was mild as May, interrupted only by slightly frosty nights and some high winds. A few spontaneous or sporadic ailments, as they may be termed, occurred. Catarrhs, diarrhœal and dysenteric affections, which lingered and then put on the semblance of fever, with many anomalous symptoms—pain and giddiness of the head, even in young people, frequently combined with disordered digestion, late hours, and habits of dissipation and irregularity as to diet and sleep; measles became abundant, the form extremely mild. I met with one case of pure enteritis, which required powerful measures; it was followed by relapse from over-eating,—the convalescence was tedious.

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[*] Considerable disease may be present with a clean, moist tongue—but health can hardly be perfect when the tongue is foul or dry.

[†] Thus we observe disease to rage, as it did a few years ago, without any obvious cause in respect of weather. Winter 1819-20 was rather rigorous as to frost and snow; no disorder accompanied or followed it. 1820-21, at least before and at the winter solstice, was as mild as autumn, while long before and after mid-summer, the weather was very unkindly; yet the usual *sequentia* of unseasonable weather did not appear. Last winter, 1821-22, the rainiest and mildest within the memory of man, was not succeeded by any thing uncommon. It appears then, that states of the weather, alleged to be influential in the production and propagation of disease, are often not followed by it; while sickness frequently prevails without any previous peculiarities of weather easily traceable, or capable of being connected together in the probable relation of cause and effect. Indeed, so far as regards climate or atmospheric and epidemic influences, or conditions and constitutions, medicine may be pronounced in its infancy in this country; and it will require a multitude of observations to bring it, if that shall ever be done, to maturity.

By the way, a lingering convalescence is often more difficult to manage than the acute disease to which it has succeeded,—diet and regimen, under such circumstances, probably demanding more attention than is generally given. The town, about this time, enjoyed much comparative health.

During *February*, the weather preserved the same mild character. No frost beyond occasional hoar-frosts in the morning; some violent gales of west wind, and heavy rains. Measles prevailed rather extensively, and some scarlatina with slight indisposition from variable climate. One case of lumbago fell under my notice. This has always appeared to me to be a curious affection, sudden in the invasion and departure—of circumscribed locality—acutely painful, yet only so on motion—no external swelling or redness, and hardly any constitutional derangement—at least none to correspond, and but little obedient to any sort of treatment. I can now always connect this complaint with a cold, raw, or half-moist half-frosty state of the atmosphere. I happened likewise to see several cases of tumours about the ankles, legs and knees, and (in one) the elbows; some of them apparently subcutaneous, painful, purplish, as from blood; others bursal, colourless and insensible. In one or two they were preceded by affections of the head, and by simple fever; in others, not referable to any previous well-marked state, unless undefined indisposition may be called so. They yielded easily to antiphlogistic means. One, however, remains even yet under treatment; painful and irksome suppuration of the bursal sheaths in different parts having taken place, with great disorder of the general health, and alternating with serious threatenings about the head. Still the case promises ultimate recovery.

In *March*, similar weather continued, dry and favourable to husbandry. The country looked healthy, without being remarkably forward.

The first fortnight of *April* was very cold, with strong east winds, hail showers and sleet. The latter half of the month was mild and agreeable; vegetation of all kinds luxuriant. Colds and indisposition from change of temperature more frequent, but little serious sickness. The measles preserved their mildness, and indeed have done so all along,—another proof, were any wanting, of the erroneousness of the vulgar belief, (I have known it entertained by some who should have been better informed), that since the introduction of vaccination the measles have become more virulent and fatal.

In the early part of *May*, the winds were mostly from the westward, but divested of much of their wonted harshness.

All the rest of the month, the days were clear and fine; the nights serene; winds westerly, gentle and grateful; heat very considerable. The effect on vegetation corresponded. I recollect nothing to equal it. There occurred very little disease, the product of climate or external causes, but much of casual chronic ailment.

The same may be said of *June;* the weather delightful, so as to be quite remarkable and memorable. Indeed such a succession of hot days was never known. From actual experience, a tolerably accurate notion could be formed of the lassitude and relaxation with which Europeans find themselves overpowered in tropical climates. Yet, though the oppressive heat * of the days was but little allayed by any breeze, the evenings and nights were rather cold; the corn and grass appearing covered with a dense frosty dew, more resembling rime than the genial moisture of the season. The consequence was, a probably not unwholesome check to an otherwise too precocious vegetation. Still every thing was full three weeks earlier than usual. It showed likewise the slow and gradual manner, in which the summer heat of our climate establishes itself. The atmosphere exhibited all the cloudless transparency of an Italian sky, with less of the disagreeable closeness so often complained of in very hot weather. Excepting a slight thunder storm and a few hours of smart rain, a single shower did not fall in this town and neighbourhood for seven weeks previous to the 29th of the month.

By the middle of *July* it became rather rainy, much to the refreshment of the parched ground. About the end of the month, there fell heavy rains, with thunder, and a calm, close atmosphere, alternated occasionally with strong east winds. Cholera began to show itself.

A state of weather and disease somewhat similar, continued through *August.* Only fever peeped out a little, † and there was a great deal of cholera.

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* The average difference of temperature for the month, between 2 *p. m.* and 10 at night, a mile from town, was from 10 to 12 degrees. Towards morning, the difference must have been twice or thrice that amount. But the register is not marked so early.

| | |
|---|---|
| Mean height of the thermometer at 2 *p. m.* - | 67° |
| Greatest height - - - - - - | 82° |
| Least - - - - - - - - | 53° |
| Barometer (average) - - - - - | 29.6 inches. |

Never 30 nor under 29.

† It is not meant to be inferred, that, before this period, fever had been wholly or nearly absent. Straggling cases are continually occurring.

By the third week of *September* many cases of fever[†] had been met with, a very few terminating fatally;—in one family, from the successive nature of the attack in two or three members, giving rise to the idea of contagion. Most of the cases of cholera were pure; others were much obscured or masked by febrile disorder; symptoms of cholera at the commencement passing into continued fever, and protracting the progress for weeks. Two days of rain happened in the month; the rest of it was fair, calm, and pleasant, with only a few windy days.

The same kind of report will serve for *October*, the rainy days amounting to nine. After the middle of the month it felt cold and peevish, with some north and east winds, though the temperature, as given by the thermometer, was fully higher than usual. The foliage disappeared rapidly from the trees, giving them a bare wintry look, and, in some measure, preventing the varied tints of autumn from being displayed in their accustomed succession. The redbreast early showed a wish 'to pay to 'man his annual visit.' Woodcocks and other birds of passage made their appearance sooner than common. Other popular presages were remarked. In short, the general feel and aspect of external nature was such, 'if augury might be in 'aught believed,' as led to the expectation of an early and severe winter.

However, by the end of the month, the weather again set in mild, serene, and dry. The aftercrops of grass were heavy, the fields appearing matted, and vegetation gave signs of renewing itself by attempts at a second spring. The fever continued, with some slight variations as to prevalence—none as to character; the cases mostly insulated both in and near the town, but, *in cumulo*, showing the existence of a great deal of febrile disease. Cholera continued to interpose, but without running into fever, if the treatment was prompt.

*November* was mild and moderate, with some high winds and heavy rains. On the 4th, the Swift (*Hirundo apus*) was seen at Tinmouth. Flocks of wildgeese were observed flying *northward*.

The weather has now, 8th *December*, become very boisterous and unsettled, but still open and wet. The Cheviots appear white, and there have been some hard night-frosts, with sprinklings of snow on the hills in our neighbourhood.

The fever has gone on, but, of late, with considerable abatement. It is quite unnecessary to trouble the readers of this Journal with any minutiæ of symptoms. Its character has, upon the whole, been mild, though many aggravated cases have occurred of what is (perhaps too vaguely) called *Typhus*, the common, continued, simple indigenous fever of this country. This disease, though the worst understood, because the most incomprehensible within the whole range of medical science, every one is nevertheless too thoroughly acquainted with, to require a particular description at this time of day. At the same time, there were some shades of difference by which it was distinguished from the fever that prevailed here four years ago; and as they led to modifications in practice, it may be as well to enumerate them. I shall, therefore, confine myself to a few remarks.

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[†] The average at the Fever Hospital was about 10, which here is very high.

Diagnosts might term it Enteric, or, as some, Febris Cholerica,† because it often began, or was accompanied with diarrhœal or dysenteric states of the bowels; but still, the appearances have hardly been sufficiently characteristic to warrant this. In some cases there has been profuse perspiration, resembling a kind of *sweating sickness*, and this early in the disease. In others, during seemingly well established convalescence, strong rigors have come on, followed by a short hot fit, and very copious sweats. These have occasionally ushered in relapse; in the majority they have been critical of health. Indeed, one of the features which most strongly characterized this disorder was, the very moderate heat and energetic action of the surface of the body. A very remarkable tendency to coldness of the lower extremities has been observed during every stage, while the heat of the trunk was unaffected, or even preternaturally great. Though upon the whole mild, the fever has not been very manageable. Remedies, while producing their expected effects, have not been followed by the desired results. The more powerfully depletory measures have seldom been required. Leeches have, for the most part, sufficed. A good deal of constitutional disturbance has generally been present, but not much powerful reaction. Except in the few very bad cases the sensorium has been little disturbed, unless under the form of apprehension and lowness of spirits. Some have had a tendency to cough, tightness, and pulmonary congestion, but without any transition into pulmonic disease requiring active treatment. The tongue was almost always loaded with a white opaque coating. Sometimes it appeared at a distance moist and red; but, when touched, felt dry and raw,—always an unfavourable sign. One of the most striking peculiarities belonging to the disorder was the liability to relapse on the least irregularity or inattention, and especially on venturing too soon out of doors,—rendering the convalescence extremely tedious and untractable.

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† Burserii Institutiones.

The treatment has been gently antiphlogistic, chiefly consisting of local blood-letting, purgatives, and diaphoretics, &c.

A few of the fatal cases have happened amongst the higher classes. Death has taken place not so much from long protracted suffering, as from the regular and forcible ravages of the disease. One case in the Fever Hospital, sunk from the irritation produced by extensive sacral sloughs, after having struggled successfully with the fever. Females have suffered in a much greater proportion than males, children but little. One case (a female) went on very mildly for several weeks, when all at once, there came on a hæmorrhagy from the nose, ears, bowels, and even the bladder, as if there had been an actual *crasis* of the blood. The patient is happily convalescent. One physician informs me, that blood has been discharged *per anum* in several of his cases, and that they have invariably done well. So that we are led to hope, that this frightful symptom is in reality not so formidable as it has generally been considered. His practice in such cases is in the first instance moderately purgative, then gently so, combined with mild astringents.

At the last meeting of our Medical Society on the 21st of November, the subject of fever underwent some discussion; and, of course, there was the usual discrepance of opinion, as to its contagious or non-contagious character. One or two instances, certainly very strong ones, from quarters the most respectable, were stated in support of the former view. But they were not quite borne out by the general results, which perhaps, after all, furnish the only decisive test, individual cases being so open to exceptions. Indeed, the whole subject is by all acknowledged to be one of extreme difficulty, the facts and the arguments being so many double-edged weapons, which it requires no great dexterity to use as such at pleasure.

It may be said, that the epidemic (for it has some claim to that title), of which a summary has just been attempted to be given, broke out somewhat simultaneously in the town and neighbourhood, in the most opposite and detached points, for the most part in private houses, and amongst servants, between whom no direct communication could be traced, or was probable,—the low confined situations, the legitimate abodes of filth, remaining to this hour absolutely exempted. Without shutting my eyes to conviction, therefore, or wishing to obtrude an opinion, I am inclined to say, that I have hitherto not met with any thing to satisfy me that contagion forms a distinguishing ingredient in this fever. At the same time it must, in fairness, be owned, that I feel a strong disposition at all times, to reject contagion as an explanation in the first instance, till evidence be brought forward too strong to be resisted.*

Dr Clanny of Sunderland obligingly informs me "they have had only three or four cases of fever for a month back, in all their parishes, and no prevailing diseases." I have not learnt whether any of the other large towns near us have suffered at all. The probability is, that they have not.

The fever is now subsiding rapidly. There have been no admissions into the Fever Hospital since the 28th November, and only two remain in the House.† Catarrhs appear to be superseding it. Scarlatina and rubeola have kept their ground, particularly the former; and, in those cases that have fallen under my observation, still with the same painful affection of the joints already mentioned, as a consequence.

Of late, several distinctly dysenteric cases have been seen, with frequent, bloody, purulent, scybalous, tenesmal stools. The treatment mentioned by Dr Cheyne in the Dublin Hospital Reports, has been found successful.

No case of small-pox has been reported by the Dispensary this year.

I shall conclude these notes, which I fear have exceeded all reasonable bounds, by stating, that I have had several opportunities of seeing tried, the tartar emetic ointment, on the plan lately recommended by Dr Jenner; and I dare venture to affirm, that the results have been decidedly in favour of the views propounded by that illustrious physician.

*Newcastle, December* 8, 1822.

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* This opinion, however, has in no instance been allowed to interfere with the disposal and personal arrangements about the sick; precautionary measures of early separation and seclusion having been vigilantly employed, whatever their opinions may have been. These, under ordinary circumstances, are considerate towards the healthy, and are essentially advantageous to the sick.

† The whole number admitted into the Hospital, during the period of greatest prevalence, from the 1st September to the 28th November, was forty-two. This, with us, is considerable, even when compared with what took place four years ago. The extent, however, to which the town has been subjected to febrile disease during these three months, will be best judged of, when it is stated that 42 is eight times the average *annual* admissions for many years previous to 1816 and 1817—and exceeds, by twelve, the whole amount of the two last years, 1820 and 1821, respectively.

## IX.

## *Case of very large Abscess containing Hydatids, connected with the Liver, which terminated favourably.* By H. C. Sherwin, one of the Surgeons to the Hull Dispensary, &c. &c.

On the 14th of June last, I admitted Christopher Burnett, a cabinet maker, to the Hull Dispensary, whose countenance was at first sight strikingly cadaverous. In answer to my inquiries, he proceeded to inform me, that three years before he had suffered very much from an attack of jaundice, attended by most of its usual symptoms, except pain. Of this he said he was soon cured, and continued, nearly two years after, to enjoy a pretty fair state of health, only interrupted by slight attacks of indigestion; and that, about a year ago, he was again affected with a jaundice, which was ushered in by rather severe pain in the right side. However, he was speedily relieved, under the treatment of a Dr Clarke of Louth (Lincolnshire), and continued tolerably well till ten weeks ago, when he was attacked by a violent pain in the same part, accompanied with every other mark of inflammation. By his account, this continued for four or five days, during which time he was under the care of a surgeon at Louth, who seems not to have adopted any active antiphlogistic means. In a few days the pain suddenly went off, which was succeeded by shiverings, and a visible change of his countenance. From this time he was able to leave his bed, but was troubled with an habitual fever and sweats, and rapidly lost flesh. A sense of fulness and heavy load slowly crept upon him about the pyloric extremity of the stomach; his breathing became shorter and more difficult; and he was unable to lie upon his left side, without intolerable pain, as if something was forcibly dragging in his right ribs; nor could he lie without uneasiness upon the opposite side, but was most comfortable when upon his back, with his head and shoulders very much raised. His appetite, which lately had not been amiss, was now leaving him; and every other symptom becoming more aggravated, he was induced to come over to Hull for advice, when he fell under my care on the 14th June last, as I stated before. I found his pulse to be soft and rapid, beating about 110 strokes in a minute; his skin was of a dirty greyish white; the tongue clean and of a pinkish hue. His extremely unhealthy countenance led me immediately to expect, that I should find about his body some very perceptible marks of disease, and in this I was not deceived; for the removal of his clothes displayed a most surprising deformity in the right hypochondrium; the right ribs, when viewed laterally, presented twice the extent of surface of the left, and a large tumour in front bulged out immediately over the duodenal end of the stomach, the integuments of which were perfectly discoloured, and free from every mark of inflammation. It was very elastic, and afforded a pretty distinct sense of deep-seated fluid. I could perceive no œdema of any part of the surface of the tumid parts; but I remarked a very large blue vein ranging across the back forward upon the ribs, somewhat resembling those to be seen upon the belly in abdominal dropsy. I now had scarcely a doubt but all this was the effect of a large abscess. I ordered the man some tonic medicines, and directed him to preserve, for my inspection, his stools and some urine apart, in neither of which could I discern the slightest appearance of hepatic obstruction; and the patient informed me that, even after the shivering supervened, both these functions had continued in a very healthy state, and that he had been led to pay particular attention to this point from experience.

My colleagues having seen the case, I proposed to open the tumour and let out its contents; which, being agreed upon, I proceeded, on the 21st June, to do so in the following manner, which may be thought by some to have been unnecessarily cautious. However, when I remembered the vital importance of every organ situated in that region, and how frequently an obscure sense of fluctuation, accompanied by elasticity, are incidental to many tumours and enlargements of the abdominal viscera, into which no prudent man would dare to pierce; I could not feel that I had a right, at once, to plunge in a large trocar, which must have been fatal if my conjectures had proved erroneous, especially, as I observed before, there was not the slightest blush of inflammation upon the integuments. Therefore, having made a short, but deep, incision with a scalpel upon the most prominent part of the tumour in front, I carefully introduced a couching needle, hoping by this means safely and fully to ascertain the existence of matter; but I was mortified to find, that after having pushed it an inch and a half deep through a tough condensed mass, only a few drops of blood would follow; yet this circumstance served to convince me, that nothing but a very thick sac intervened. I now took a good sized trocar and pushed it up to the guard, as it was barely long enough to reach the cavity, and, on withdrawing the stilette, a light greyish pus, mixed with the opaque and thickened cysts of ruptured hydatids, gushed forcibly out in a stream, which was occasionally interrupted, as a smaller hydatid or a large cyst happened to block up the cannula. These being easily hooked out with a bit of wire, about six pints of sero-purulent fluid were taken away. The cannula was withdrawn, the opening closed with sticking-plaster, and the patient put into bed; previous to which I observed that the great superficial vein had disappeared, I suppose from the slight relaxation of the skin, which ensued,—and though the tumour in front had considerably diminished, the ribs on the right side still continued to bulge out quite as much as before; the poor man breathed and felt much better, but was still unable to lie upon either side.

In the morning I was sent for, and found him in great pain; the whole abdomen was extremely tender, his tongue had become dry and slightly furred. I gave him some purgative medicine, and ordered a dozen leeches to be applied upon the belly. Almost all the pain had left him when I saw him next morning, except in the immediate neighbourhood of the disease; a blister removed this. The little advantage which had been gained by evacuating this immense abscess began to disappear daily; so much so, that on the 28th, there being quite as much swelling as before, but much greater debility and emaciation, I again introduced a very large round trocar about an inch higher than before, into the tumour, and took away ten pints of nearly the same kind of fluid; only the hydatids and serum seemed to be in much larger proportion than before. A large compress of linen with a broad tight bandage were fixed round his body. The bulk of the right side was in some measure now reduced, but he did not express that degree of relief which he had gained at first; the opening healed up rapidly, and he sustained no particular inconvenience from the operation.

I now ventured to hope that the cyst would contract considerably, intending to treat the case, as nearly as circumstances would allow, in the same way as psoas abscess. Yet I had the mortification, in three or four days, to find the tumour increase to its usual size, attended by more irritation than ever of the thoracic viscera, excessive debility and emaciation, with a change in the character of his fever, which last he attributed to cold that he had taken; the tongue became furred, the skin hot and dry.

On the 4th July I passed the trocar at the same point as before; and, as the parts did not appear to show the same disposition to be inflamed as at first, I determined to leave the cannula in the opening; hoping that I might be able, by this means, to keep the cyst empty, and thus facilitate its contraction and obliteration. A gallon of fluid, almost all pus, yet containing hydatids of a very small size, was let out; but when the man was laid down, the cannula rocked to and fro, according as the diaphragm contracted and expanded, and gave him very great pain. And I observed, that when the patient inspired, the air rushed in with a slight noise, as through the valve of a bellows; but when he emptied his lungs, which he did suddenly and with force, a strong whistling sound came through the instrument. Having plugged up the cannula, I left him; but after a few hours I was sent for, and requested to take it out, as it could not be borne. I did so, and the pain went off, but on the day following he was much worse;—a disagreeable low kind of fever, and looseness of the bowels, had supervened. These abated in a few days, in some degree. His cough had become worse, attended with an expectoration of mucus tinged with blood; and on the 8th, (when the tumour had again increased considerably), during a violent fit of coughing, a small hydatid flew out of the opening, which had not healed, in consequence of the irritation of the cannula, followed by three or four pints of fetid matter, which gave some relief. On the 11th, about a gallon of pus, containing an immense number of very small hydatids, was removed by means of the cannula; the usual dressing was replaced. The fever now began to resume its old remittent form; but the patient sunk very fast. On the 15th, six pints (principally pus) were abstracted by tapping. Three days after this, while coughing, about three pints of matter escaped by the opening; but, as the bulk of the right side was as great as ever, on the 23d I tapped it again, and let out nine pints of brown fetid fluid, with a very few small hydatids.

As I was now fully convinced that the sac had not diminished, and could not do so without a depending opening, by which it might be kept quite empty, and as the patient could lie only upon his back, with the slightest inclination to the right side, I was desirous of ascertaining, whether I could safely reach its cavity, by a trocar introduced between the back part of the lower ribs, so as to allow a direct descent for the fluids when the patient was laid in bed. This was the only slender chance, in my judgment, that was left for preserving him. I therefore proceeded to sound the cavity with an elastic-gum catheter bent into the third part of a circle, which I found could be swept round without any obstruction. I now inclined that point of the instrument which was in the sac towards the right side, and was able to form a conjecture that was satisfactory to my own mind, that no portion of the liver, or any other viscus, intervened betwixt the abscess and the lower ribs. I accordingly proposed to the poor worn-out creature, as my last trial, to make a new opening, explaining to him my views in doing so; to which, with admirable fortitude and patience, he consented. I of course thought proper to wait till the cyst was in a certain degree refilled, which, four days after, again discharged from the hole in front two quarts of pus, when the man was coughing. On the 30th, deeming that a sufficient quantity of fluid had collected, I proceeded, in the presence of Mr Higson, house-surgeon to the Hull General Infirmary, to operate as I proposed. Having made a pretty deep incision, an inch in length, with a scalpel, exactly betwixt the ninth and tenth ribs, just behind their angles, I introduced the large round trocar, which I had used before, in a direction pointing to the *scrobiculus cordis.* The instrument required great force, as it seemed to pass through a very tough mass; and it was not till I had pushed it up to the handle, that I could feel it enter the cavity. I was, in some measure, prepared for this, although it was not without anxiety that I drew out the stilette. I had the pleasure, however, to see a full stream of very fetid pus flow out with freedom. About six pints ran out, having a few amber-coloured hydatids floating about, of a larger size than had been lately seen. As the matter ceased to flow, a little bile came away, which always occurred afterwards, when the tip of a bougie was pushed against the upper surface of the sac. As the patient did not seem to suffer so much as before from the admission of air, and as I calculated that it would now be in my power to prevent any pus being retained so long as to become fetid, I resolved to leave in the cannula, which I secured by two broad tapes tied round the body, and united by a small packet of linen, just big enough to admit the head of the instrument. These were kept steady by two other tapes brought over each shoulder, and crossed at the back. Although the cannula, as might have been expected, gave considerable pain during the first two or three days, yet the system was not so much disturbed as before. The act of breathing did not create much motion in the instrument.

During the first week, the quantity of discharge averaged about a pint and half daily, very fetid, and slightly tinged with bile. Scarcely any hydatids ever came away now, although a long metallic bougie was introduced twice or three times a day, which was absolutely necessary, as the cannula did not quite enter the sac, the internal sides of which were disposed to heal over, and cover the end of the tube. I of course took an opportunity at these times to measure the depth of the cavity, which now began to diminish rapidly, as did the discharge, which, on the tenth day after the last puncture, did not equal one half pint daily, and that without any fetor whatever. The poor man's strength and appetite now began to return remarkably quick; and as the cannula had become too short, a thick piece of wax bougie was substituted, which did not give so much pain. It may be as well to remark here, that this pain came on with an occasional dart along the course of the ribs, and at the moment created the violent sob as of a person suddenly plunged in cold water. I also remarked, that the sac contracted from below upwards, and that, before the middle of August, it was not larger than a common teacup, although a fortnight before it was capable of containing nearly two gallons. I could always easily measure the size of the sac, by marking with my thumb-nail the outward part of the bougie when its point entered the cavity, and again when it touched the opposite side, which seemed to be as hard and as firm as the uterus immediately after delivery.

At this period, no tumour could either be seen or felt in front; and the ribs on the right side had gradually fallen into their natural shape. The case now proceeded most agreeably, so that, before the 10th of October, the fever, and every other annoying symptom, had entirely departed; the pulse did not exceed 70 in the minute, the patient had no sweats, had a good appetite, could enjoy the air, take exercise, and began to feel pretty strong; and, as the part did not discharge more than two drachms of pus daily, he requested me to dismiss him, as he felt himself able to return to his work. I did so, urging him to direct his wife, who by practice had become very competent, to pass a metallic bougie once or twice a day for a week or two longer, and let me see him at the expiration of a month.* With respect to diet and medical treatment, it may be enough to state, that these were such as to afford support, and give tone to the system; and when any unusual symptom made its appearance, a suitable variation was adopted. His stools and urine, for the most part during the whole period he was under my care, presented no appearance of bilious obstruction; of course, this varied when the character of the fever varied, particularly after I allowed air to enter the cavity.

*Remarks.*—As to the origin of the cyst, I think it probable that some of the hydatids had previously existed in the liver, and had contributed to bring on the jaundice, which the patient had first complained of, and that, by some means they had afterwards served to cause that active inflammation, which appears to have run so rapidly into suppuration. That a portion of the liver was involved in the disease, may be inferred from the bilious matter which was discharged, and the amber tinge that was by this means given to some of the hydatids. I am also inclined to think, that a part of the cyst adhered to the diaphragm, on account of its bellows-like action, when quite empty, at that time when a free passage was afforded for the air through the cannula.

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* He came over from Louth, to show himself to me, on the 1st of December, after an absence of nearly seven weeks, during the whole of which time he had worked without having been laid up a single day. The sac was entirely obliterated, and nothing remained but a shallow hole, which I directed him to keep open a little longer as an issue, as he is of a scrofulous habit.—I read over this narrative to him, that I might ascertain from him whether I had made any error or omission

One circumstance attended this case which I think worthy of remark, that, as no very small hydatids could be discovered in the fluids which were abstracted by the first and second, so, in the third and subsequent operations, these animalculæ were almost entirely small, for the most part not exceeding in bulk a common pea; from which I am led to infer, that they had sprung into existence within a week. One cannot help reflecting with surprise upon the rapidity with which such an immense quantity of matter was secreted; so that, notwithstanding the cyst could hardly hold two gallons, yet such was the activity of its secreting powers, that upwards of 70 pints of fluid came out of it within the short period of seven weeks, viz. from the 21st June to the 6th of August. Mr A. C. Hutchinson published a case in 1816, which fell under his own management, closely resembling in its nature the present one, but differing in the circumstances under which the practitioner was placed. His patient got well without a *depending opening;* but at least three years were occupied in his recovery, whereas Burnett was completely cured within three months. I attributed the advantage in favour of the latter to the *depending opening* that was effected by the last operation, and which enabled me to keep the sac quite empty. Hence it behoves the surgeon to exert all his courage and talents to accomplish this frequently difficult and dangerous object. As it may be thought by some that I have been tediously and unnecessarily minute in detailing all the petty circumstances of each operation, I would beg leave to say, that should any medical man be called upon to act in the early stages of a similar disease, he will need every assurance, under the obscurity and doubt that must arise out of the great thickness of a sac so dangerously situated. The following abstract will afford at one view the amount of matter which was removed betwixt 21st June and 6th August.

| | | |
|---|---|---|
| 1822, | | |
| June 21st, | was abstracted by cannula, | 6 pints. |
| 28th, | by the same, | 10 do. |
| July 4th, | by the same, | 8 do. |
| 8th, | expelled by coughing, | 3 do. |
| 11th, | by cannula, | 8 do. |
| 15th, | by the same, | 6 do. |
| 18th, | while coughing, | 3 do. |
| 23d, | by trocar, | 9 do. |
| 27th, | while coughing, | 4 do. |
| 30th, | by trocar, | 6 do. |
| About pint and half daily till 6th August, say | | 7 do. |
| | | 70 pints. |

Of course, a considerable quantity came away during the recovery of the patient; but it would be needless to extend the calculation, as his health improved very fast after the discharge had diminished within one-fourth pint daily.

*Hull*, 12*th December* 1822.

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## X.

## *Military Therapeutics.* By George Power, M.D. Surgeon to the Forces, and formerly Surgeon to the 23d Regiment of Foot, or Royal Welch Fusileers.

*Ubique fidelis.*

Wounds inflicted by cannon balls, musket balls, cannister and grape shot, and other hard and obtuse bodies, propelled by the explosion of gunpowder, are of such a serious nature, and involve the minds of professional men occupied in their treatment in so much perplexity, that the utmost efforts of reason and reflection in elucidating the nature and cause of the morbid appearances they assume, in mitigating their malignancy and obviating their consequences, are frequently exerted in vain, and serve but to show, in too many instances, the confined limits of our abilities to relieve, and the great cause we have to commiserate the sufferings they occasion. Any efforts, therefore, ever so humble, to diminish those, to remove the veil of obscurity in which the characteristic features of these injuries are still enveloped, and to open new sources of light, to direct the attention of others to unsearched channels of information, deserve to be received with a spirit of candid inquiry.

To claim the merit of originality or priority would be but to betray ignorance and its usual concomitants, vanity, arrogance, and self-sufficiency. However, as a passage occurs in a short Essay* of mine, published exactly twenty years ago, containing facts applicable to my present purpose,—the investigation of the cause and nature of hospital gangrene, it will not, I hope, be considered intrusive to insert it here.

"The plague appeared so frequently among the patients at Rosetta, in common with ophthalmia and other diseases, that it was found necessary to establish a separate hospital for the reception of patients ill of the former, and to prohibit the admission of any patient into the general hospital, until a scrupulous examination of the symptoms † had taken place.

"Under these inspections, the great variety of diseases that appeared, compared with the similarity of circumstances in which they were contracted, afforded a striking proof of the general prevalence of the *putrid virus* in the atmosphere, whilst a general tendency to putrefaction rendered its constant existence and increased acrimony within the hospital equally evident. The smallest sore arising from a common pimple, amongst the attendants, would often spread to an alarming extent, and even superficial wounds were generally attended with such exquisite pain, and wearisome alternation of health and disease, that the patients frequently requested amputation of the limb; and when this operation furnished the only likelihood of saving the patient, or restraining the rapid progress of mortification, the wound produced by the hand of the surgeon uniformly assumed the same appearance as the original sore, until the exhausted system yielded at length, and dissolution closed the melancholy catastrophe."

During a period of ten years succeeding to this, whilst serving as assistant and as surgeon of the 23d regiment in Gibraltar, at home, in Denmark, America, the West Indies, and the Peninsula, I do not recollect to have seen an unequivocal case of hospital gangrene, although, in December 1805, the regiment being then in Bletchington Barracks, on the coast of Sussex, almost every punishment, even the slightest, was followed by sloughing and sphacelus, in some cases so extensive as to expose the scapula and spinous processes of the dorsal vertebræ, and to render it necessary, under the inspection of Deputy-inspector Remond, to relinquish corporal punishment altogether, though desertion was then a trade.

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* ATTEMPT to investigate the Cause of the Egyptian Ophthalmia, with Observations on its Nature and different Modes of Cure. Murray. London, 1803.

† Buboes in the groin or axilla. On these examinations, made under the gateway, without stripping the patients, my hands have been frequently smeared with pus effused from pestilential abscesses.

The duties of a staff-surgeon place him in a vast field for observation and inquiry, and the battles of Albuera, of Salamanca, and Vittoria, afforded ample opportunities of witnessing the dreadful havoc that foul air, generated in the best regulated general hospitals, makes among the wounded; and as, when the tenor of opinion, has been long and uniformly directed into one channel, and the views of a subject have been long familiar, the mind does not readily accede to a different and almost opposite mode of thinking, a collection of facts, well authenticated by a process of legitimate induction, may lead to a salutary change in our original tenets. A few extracts from my official reports to Sir James M'Grigor, with cases annexed, are selected, not only as illustrative of the above position, but as leading to the inferences which they will appear to justify.

### *Extract of Official Report, &c. &c., Vittoria, October 20th,* 1813.

No disease appeared in the 4th and 5th subdivisions of the Domingo Hospital, but that which is the natural consequence of gunshot wounds, and those, as must always be the case, assumed morbid or healthy appearances corresponding to the extent of the injury sustained, and its influence on the general health of the patient. In almost all the cases in which bones, tendons, or fasciæ were engaged, sloughing to a greater or less extent took place, which continued until the morbid portions of these bones, now become extraneous substances, were restored or removed. In slight injuries, exfoliation and a removal of the diseased tendon was effected, to which the healthy action of the parts with which they were connected contributed; but in cases where the injuries were extensive, sloughing and mortification of the integuments and muscles ensued, inducing debility and occasioning death, these parts never assuming that healthy action which would afford a hope of recovery, or admit of amputation.

The mortality which prevailed amongst those who suffered amputation, as well as those labouring under extensive wounds of the soft parts, and the morbid appearances the wounds generally assumed, seem to have arisen from the influence of the season operating on the debilitated and relaxed constitutions of patients exhausted by pain and watching, these occurrences not being confined to the hospital, but appearing equally prevalent amongst the wounded officers accommodated in houses in the town. In compound fractures and extensive sloughing of the extremities, but one alternative afforded any hope, viz. to amputate the limb, without awaiting the commencement of healthy action. In some cases the operation succeeded, in others failed, and in cases wherein the healthy action was apparent previous to amputation, the opening up of the stump, sphacelus, secondary hemorrhage, and death ensued.

In the following case, taken by Assistant-surgeon Hibbert, Royal Waggon Train, although the bones were not, the *fascia lata* was engaged, and, when removed in successive portions as it became detached, left a surface of great extent exposed, but of a clean and healthy appearance. The discharge, however, was profuse, and debilitating night sweats supervened.

William Holland, 1st battalion 7th regiment foot, was wounded on 28th July, a musket ball passing from the outer and posterior side of the tibia to the inner and opposite side, without wounding the bones or injuring the interosseal artery. The wound went on well until the 13th September, when it all at once acquired a black appearance, and sphacelus came on, which continued to increase and extend, notwithstanding the exhibition of nourishing food, wine, &c. &c., and the application of the most active remedies, until the 21st, when the tendency to sphacelus was communicated to the whole surface of the gastrocnemius, which was previously much exposed. Pulse hurried and small, bowels loose, tongue dry, yet clean, appetite tolerably good, great irritability.

℞ Pulv. cinchon. ℈i. Pulv. Aromat. gr. x. Tinct. opii gutt. x. Vin. com. ℥ij. M. Fiat haust. sumendus omni hora. Cataplasma et fomentatio.

22d.—Symptoms as yesterday.

Perstet in usu medicament. om.

23d.—Some heat of skin, pulse fuller, ulcer cleaning, the slough separating in considerable quantities.

Cont. medicamina omnia.

24th.—The destruction of substance proving great as the slough is removed.

Cont. medicam. Low diet, a pint of wine, a gill of brandy, pint of milk, coffee, pudding.

25th.—Symptoms the same.

Contin.

26th.—The ulcer, although tolerably clean, extended along the fibula, and the inferior edges appear flaccid. Slept well, bowels loose, skin cool and moist, tongue clean, pulse nearly regular.

Continuent. medicamina. Applicetur parti inferiori ulceris ol. terebinth.

27th.—Symptoms the same.

Contin. med.

28th.—The upper part of the ulcer exhibits the muscles cleared of all slough, to which is applied lint, soft dressing, and a bandage.

Cont. ut heri.

29th.—The whole surface of the sore is healthy, discharge copious, great irritability, pulse full and frequent, night sweats, slight diarrhœa.

Contin. medicam.

October 1st.—During the last night, sweated most profusely, which continued until morning; is now quite cool, pulse weak and slow, stomach rejects all medicine.

Omit. cort. Habeat vin. c. tinct. opii.

2d.—Patient hectic, discharge healthy.

3d.—Much sweating during the night, great debility. Amputation is deemed the only chance to save life, which being performed above the knee, the patient went on apparently well until the 7th, when he became dilirious, and died during the night. On examination of the stump after death, it was found that little or no action had taken place; the bone was denuded one inch and a half above the excised surface, and the whole stump exhibited an appearance as if it had been boiled.

*Extract of Official Report, Fuenterabia, March* 20, 1814.
*Total treated*, 217. *Deaths*, 2.

A wound on the middle and front of the tibia assumed all the appearances that indicate approaching sphacelus, and caries of the bone was apprehended. The skin and integuments became livid, and quantities of ill-conditioned pus were discharged from the wound, on pressing upwards on the tibia. The sinus being laid open along its whole length, with a scalpel and the cavity filled with dry lint, and covered with soft dressing, the sore healed from the bottom with great rapidity.

A second instance occurred in the case of a private, — batt. German Legion, wounded through the fleshy bellies of the *gastrocnemii*, the fibula fractured, and the fascia much lacerated. Quantities of ill-conditioned pus were constantly discharged from the wound, and the integuments threatened sphacelation as far down as the tendo Achillis. A scalpel was introduced into the wound, and the sinus which had formed under the fascia was laid open by cutting through it longitudinally, to the full extent of the existing disease. The sinus was dressed in the usual manner, with dry lint and soft dressings. The fibula united. Every succeeding day showed the advantage of this practice; the wound is now in the most healthy condition, and the patient's strength wonderfully restored.

A third proof of the success of this mode of treating gunshot wounds penetrating the fascia was afforded. A private of the same regiment was wounded on the inside of the thigh, the ball passing through without injuring the bone or arteries. In the course of the month, the wounds acquired a livid hue; the skin and integuments put on that turgid, tense, and inflamed appearance so indicative of approaching mortification. In fact, it was a case, that, in the eyes of many, would warrant immediate amputation. The scalpel, however, was introduced into the wound on the outside the thigh, and an incision carried upwards and downwards longitudinally, through the integuments and fascia, an inch at least in depth, and five in length. The wound was dressed in the manner already mentioned, and a large poultice applied over the whole, which was directed to be frequently repeated. The man being of a strong plethoric habit, was bled copiously, a purgative administered, and the consequences were extremely satisfactory. The original wounds in a few days assumed a healthy aspect; that produced by the scalpel discharged a healthy pus, and there is no doubt of this case terminating favourably.

The substance of the succeeding Report for April having already appeared in (Vol. XI. p. 429, Note) the Edinburgh Medical Journal, dated June 1815, from the Ophthalmia Depôt, Plymouth, of which I had then the superintendance, need not be repeated here; but that for May, as containing cases connected with points on which it is my purpose to offer some remarks, I beg leave to subjoin.

### *Report of Division B, General Hospital, Fuenterabia, from 27th April to 20th May,* 1814. *Cases treated* 150. *Deaths* 7.

Several means to promote the healing of gunshot wounds have been employed in the course of the last month, with degrees of success so various, that it is difficult to reason upon the practice which has been found beneficial in different, and inert in apparently similar cases. Disease and caries of the bones succeeding to amputation and severe wounds of the cranium, followed by caries of the frontal and parietal bones, have been the cause of the seven deaths.

Joseph Swyndock, 1st Battalion King's German Legion, admitted March 9th, was wounded February 7th, at Bayonne. The ball perforated the *sartorius,* passing out through the *semitendinosus* and *biceps flexor cruris.* The wound, from time to time, took on an unclean and unhealthy appearance, discharging at intervals large quantities of ill-conditioned pus, and long filaments of fascia, &c. &c. The wound, having exhibited a tendency to sloughing, and hospital gangrene being apprehended, on the 14th March the patient was transferred to the hospital set apart under the care of Staff-surgeon M'Lean, for the reception of such cases.

On the 27th of the same month, he returned much emaciated, the wound more healthy, but with a considerable loss of the integuments on the inside as well as the outside of the thigh. The patient was kept on low diet, with occasional *extras*, until the 19th, when the wound, having manifested no disposition to heal, began to exhibit appearances of approaching gangrene. At this conjuncture, the handle of a scalpel, or even the finger, might be passed with ease from one orifice to the other through the limb, the muscles hanging pendulous from their origins or insertions, and supported only by the integuments that remained on the back of the thigh. Pulse feeble, great debility. His bowels being confined, an ounce of castor oil was ordered, and from an idea that the laxity of fibre and general debility demanded tonic and stimulating treatment, the following mixture was prescribed.

> ℞ Decoct. cinchon. lb. j. Tinct. ejusdem ℥i. M. Sumat. ℥ij. hora quaque tertia. Low diet, one pint port wine.

The wounds were treated with simple dressing, and a bandage applied tolerably tight. On the 20th, the edges of the sores appeared red and inflamed, their surfaces glossy, and discharging profusely a thin glairy pus; a slight degree of fever supervening, and his stomach rejecting the medicine.

> Omitt. mistura. ℞ Calomel gran. ij. Opii gran. i. Fiat pilula ter die sumenda. Cataplasma seminis lini. pulv.

This treatment was pursued until the 23d, when the sores and discharge appeared more healthy, although the orifices still communicated through the limb, and emitted a glairy pus on pressure. Pulse weak, but regular; bowels free.

> Cont. pil.l.

On the 24th, both sores were considerably improved, the discharge less, and more healthy, no appearance of gangrene; appetite increased.

> Omit. pil.l. calomel c. opio. Sumat. opii granum unum hora somni. Low diet. Extra bread, rice, and an egg. This

plan was followed up until the 29th, when he was pronounced convalescent.

Peter Wenderbrock, Light Battalion King's German Legion, was admitted 9th March with a superficial wound on the left leg. On 21st, extensive sloughing appearing inevitable, he was sent to the hospital already mentioned. On the 7th April he was readmitted, having suffered amputation above the knee. Union of the integuments, by the first intention, had taken place, and when the ligatures were removed, the union was completed.

Appearances, however, still indicated latent disease; his countenance continued dejected and palid, but occasionally flushed with hectic; his eyes sunk, and his tongue dry. About the 30th, a point in the centre of the cicatrix exhibited diseased action, and in a few days the bone protruded, divested of periosteum, and day after day became more prominent; his general health materially impaired.

May 15th, a separation of the black and diseased portion, embracing the whole circumference of the bone, became sufficiently marked about an inch from the extremity, and was removed with a metacarpal saw, as producing less concussion in these painful operations. This day, the 20th, healthy granulations have covered the bone, the integuments are brought, by a careful application of the roller &c. &c. to approximate by degrees, the discharge is good, and all appearances extremely favourable.

John Bell, 2d Battalion, 59th regiment, aged 28, was wounded on the tibia of the left leg, by a splinter of a shell in the storming of St Sebastian, on 31st August 1813, and from that period to the present the wound never healed completely. On 6th January 1814, he was admitted into this hospital with a foul ulcer of considerable extent; the tibia carious and exposed, the remaining integuments covering the bone evidently diseased, florid and inflamed, from the knee to the instep. The patient, being of a weak and irritable habit, and worn down by pain, abstinence, &c. had great reluctance to suffer amputation; but on the 20th April, ulceration having extended to the foot, and being threatened with removal to the sloughing hospital, he consented to submit to the operation, which was performed above the knee.

Emaciated to the last degree as Bell was, and the powers of life much exhausted; as many instances have occurred in which the bones, even in a healthy state, have penetrated through the very thin covering of muscles and integuments that can be preserved, and the presence of long ligatures being considered injurious to the bone in such cases; those were cut short, and the muscles and integuments brought forward and collected so as to cover the bone circularly, a dossil of lint spread with unguent. ceræ being interposed, so as to preserve an aperture for the discharge of purulent matter as it formed, adhesive straps and the roller being applied, so as to answer this intention. The dressings being removed on the fourth day, the face of the stump appeared clean, but inactive. His diet was increased, and the bowels kept regular, with castor oil. In a few days, healthy granulations were seen covering the bone, and filling up the circular cavity; the ligatures came away with the dressings, and the circumference of the wound having diminished daily, the patient is marked convalescent. Mean temperature of the month 62.

*Cork, Feb.* 12*th*, 1823.

*(To be continued.)*

## XI.

## *Case of Diseased Spleen, with a few Observations upon Diseases of that Viscus.* By WILLIAM CRANE, M.D. Boston, Lincolnshire.

CARTWRIGHT, Mr, ætat. 32. This gentleman had been ill for several weeks of an intermittent fever, with paroxysms running through the regular stages, and continuing for nearly four hours. Its returns are very irregular as to the hour of the commencement of the cold fit, and are more severe every other day. Upon visiting my patient, I found him so weak as to be unable to sit up for more than a quarter of an hour at a time. He was continually changing his position in bed, and complaining of a weight and uneasiness on his left side, just under the margin of the ribs, and extending to the *scrobiculus cordis.* When he sits up, he generally leans forward, with his hands upon his knees, that position affording him the most relief. He felt pain upon pressing the tumour, and upon taking a deep inspiration, which also excited slight coughing. The tumour gave a sensation to the hand, as if effusion had taken place in a cyst that was deeply seated. Head at times painful, countenance expressive of anxiety; tongue white in the centre, clean towards the edges; appetite bad, and, shortly after eating, the food is rejected. Bowels are kept open by aperients, urine very thick. He lies chiefly upon his back or left side, and takes an opiate at bedtime, without which he could obtain no rest. Pulse feeble, 100. His intermittent yielded to the bark in the course of a fortnight; but the anxiety, restlessness, and tumour, continued undiminished. The tumour had elevated the arch of the three lower ribs. The mercurial liniment was ordered to be rubbed on the left side, night and morning, and the bowels kept open by aperients. Instead of using the liniment as directed, he had it applied several times a day. In the space of four days nearly two ounces had been used, and a most copious ptyalism was induced. He evidently became much weaker, and his restlessness and anxiety were very considerably increased. Nothing remained on his stomach except a very small quantity of porter, and a small piece of toasted bread. He continued free from fever. As the effects of the mercury went off, he became more composed. The tumour appeared somewhat smaller. A fortnight from this time he was one evening seized with severe sickness, and the tumour suddenly protruded very considerably forward. As his pulse had become stronger since he left off the mercury, the local application of leeches to the part affected was recommended once in two or three days. The leeches gave relief; and, after having been applied at intervals of two and three days, he said his tumour gave no pain, either upon pressure, or on making a deep inspiration, and that he felt himself better, although the weight at the stomach still continued. On the evening of the day on which he thus expressed himself, he suddenly complained of severe pain and uneasiness about the bladder. He was seized with a shivering fit, became delirious, gradually sunk, and on the fourth day from this attack died. As he resided in the country, I did not see him during the last four days of his illness, his friends judging that medical aid could be of no service. Leave was obtained to open the body, and I went over with his surgeon, Mr Cammack.

Upon opening the abdomen in the usual manner, we found the omentum partly displaced on the left side, and having slight traces of inflammation. The arch of the colon was pressed obliquely forward and downwards towards the right side, and the smaller intestines also misplaced in the same manner. The whole of the left side was occupied by a greatly enlarged spleen, which pressed upon a large portion of the stomach, to which it adhered strongly; slight adhesions were also formed between it and the neighbouring intestines. It also adhered strongly to the whole of the left side, up to the diaphragm. To this it did not adhere; but, upon inserting the hand between the spleen and the diaphragm, the former had the smooth and rounded feel resembling a lobe of the liver. Upon first view, it in fact appeared more like a liver than a spleen. When taken out, and laid straight, it measured 13 inches in length, and 14½ in circumference. We had not an opportunity of weighing it, but, from carefully poising it in our hands, we judged it could not possibly weigh less than six pounds. Upon cutting into this diseased viscus, we found the vessels upon the upper portion gorged with dark grumous blood, and easily torn with the fingers. Towards the centre it became more consistent; and there were several small cysts containing a thick cheesy matter, and tuberculated. In the centre there was a dense, hard, white substance, having the radiated appearance peculiar to scirrhus.

The liver was in that state described by Dr Baillie as approaching to scirrhus, the edges being slightly turned upwards. The bladder was empty, and all the abdominal viscera, except the above, were healthy. The mesentery was remarkably loaded with fat.

The appearances upon dissection clearly explain the symptoms detailed in the case. The enlarged spleen, pressing upon the stomach, would of course induce vomiting, whenever that viscus was distended with food. The pain that was felt in the bladder, in the last stage of the complaint, would arise from the spleen pressing upon it when distended, and the great irritability and restlessnes might be occasioned by pressure upon the plexus of nerves beneath it.

In the fens of Lincolnshire, a slightly enlarged spleen, arising from repeated attacks of a long continued ague, is by no means an uncommon occurrence, and is well known to the inhabitants by the name of ague-cake. The individuals having an enlarged spleen seldom complain of inconvenience or uneasiness. The enlargement often continues for life, and I have seen persons who have had it for above twenty years. Sometimes the tumour disappears. Those who have an enlarged spleen, have generally a paleish, yellow complexion. Mercury does not appear to be at all beneficial in enlargement of the spleen. In Mr Cartwright's case, his irritability and debility were greatly increased by it. Mr Young, in relating his own case of diseased spleen, in Duncan's Annals 1801, states, that he used "blisters on the part, and frictions of mercurial ointment without the least benefit; indeed he grew worse under the latter." After great suffering, he was cured by a native Indian who applied the actual cautery. Extensive disease of the spleen, I am inclined to think, does not very often occur without some of the other abdominal viscera being also considerably affected; when it does, the symptoms indicating the disease are very obscure. This obscurity may probably be owing to the spleen being chiefly supplied by nerves issuing from the great sympathetic. The origin of these nerves is still a matter of dispute; but it is very probable, as is observed by Haller in his Elementa Physiologiæ, that it is owing to the filaments of these nerves passing to and from ganglia, that the mind is incapable of distinguishing accurately the place in which pain is situated, when parts, chiefly supplied with nerves from ganglia, become diseased. Dr Heberden in his Commentaries relates only three cases in which the spleen was the only part diseased. In the first, there appears to have been no complaint made of any peculiar pain or uneasiness in the spleen; yet, upon dissection, "a large ulcer was found in one part of the spleen, and the rest of it seemed rotten." In the second case, the spleen was "found of uncommon magnitude." In his third case, the disease might be easily known, on account of the enlarged spleen forming a tumour on the left side; upon dissection it was found to weigh fifty-two ounces. In these cases, the Doctor states, that the other viscera were found healthy. In two cases that I had lately an opportunity of seeing, the liver was found greatly enlarged, and of a pale pink colour,—the spleen in both remarkably small. In a case of icterus that I attended, occasioned by a diseased liver, the spleen was also found considerably diseased; yet during life, the patient never showed any symptoms indicating that extensive disease was taking place in that organ. As the dissection is interesting in some other points, I will relate it in the words of the surgeon, who kindly transmitted to me an account of what he observed. The body was opened by Mr Lambden of Coningsby, an intelligent and well informed practitioner. He states "that the liver was much enlarged, appearing as if half boiled, of a greyish slate colour, and adhering at every point to the surrounding viscera; to the stomach and intestines very strongly, and with innumerable bands to the whole extent of the diaphragm, and ribs within its reach. Many of the adhesions were evidently of a longer standing, and many more recent. On cutting into the liver, there were specks of bile in some of the *tubuli biliferi*, whilst other parts of the viscus appeared, in some degree, disorganized. The gall-bladder was found empty; the hepatic duct was nearly obliterated by the pressure of the enlarged liver upon the enlarged and scirrhous pancreas; which also was in a diseased state throughout its whole extent. Its right extremity, or head, compressed the *ductus communis choledochus*, so that a small probe would but just pass into its calibre. The stomach was completely empty and free from disease. The spleen would weigh, I believe, nearly three pounds, its anterior part gorged with venous blood; but, on cutting through its substance, a quantity of thick fluid immediately escaped, similar in appearance to pus, deeply tinged with blood. When this fluid had exuded, there were seen cavities which it had filled, apparently enlargements of some of the cells of the spleen."

From what has been stated above, and from the writings of various authors, it appears that the spleen can become greatly enlarged, scirrhous, and converted into purulent matter, without giving rise to such acute pain and uneasiness in the part affected, as to point out unequivocally the seat of disease. Here it is, perhaps, not improper to infer, that splenitis, as described by nosologists, is a very rare disease, if it ever takes place. This conclusion is farther strengthened by an observation of Sauvage, in his Nosologia Methodica, vol. i. page 503. He says, "Verum ita rarus est hic *(splenitis phlegmonodea)* affectus, ut præter Forestum, qui bis hunc se observasse refert, non describit, neminem noverim, qui ejus existentiam testetur." Dr Baillie in his Morbid Anatomy states, that "it is very rare to find the substance of the spleen either in a state of inflammation or suppuration; but such cases have occasionally been observed and related by authors;" and he refers to the writings of Lieutaud. The symptoms described in Cullen's Nosology would all take place in inflammation of the peritoneum in the neighbourhood of the spleen, and might be thence communicated to the membrane of that organ. The obscurity of the symptoms arising from disease in the substance of the spleen, cannot arise from want of acquaintance with the various diseases to which it is liable. For there are many cases on record of the spleen having been found scirrhous, sarcomatous, almost entirely converted into pus, tuberculated, very soft, hydatids found in it, veins small, very large, containing stones, and it has been said to be all together wanting. This obscurity, therefore, is perhaps to be attributed to its possessing little nervous sensibility, and to its being supplied chiefly with gangliar nerves, as already stated.

*December 9th*, 1822.

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## XII.

## *Case of Poisoning by Laudanum, in which Blood-letting was efficaciously employed.* By W. M. Ross, Esq. Surgeon.

O δὲ καιρὸς ὀξὺς.—Hipp.

William Moncrieff, ætat. 40, seaman on board a Revenue cutter, having squandered all his pay on shore at Leith, and thereby left his family destitute, formed the desperate resolution of destroying himself. For this purpose, on Sunday, the 10th February last, he procured an ounce of laudanum from an apothecary in town, about two o'clock in the afternoon, Thinking, probably, the quantity insufficient for his purpose, he returned to the apothecary's about four o'clock, and obtained another ounce. As he appeared intoxicated, the apothecary sent one of his boys to ascertain whether the laudanum was not for himself, as he stated it was for his captain, and that he had broken the phial containing the first ounce. On the way, however, he forcibly took possession of the phial containing the laudanum from the boy, and retired to a tavern in the neighbourhood.

He appears to have swallowed the two ounces between four and five o'clock in the afternoon. He had stated to the people of the house where he then was that the medicine was for a very different purpose; but, becoming soon afterwards very drowsy, and incapable of being roused, they naturally inferred his dreadful purpose, and sent for the druggist from whom he had procured the laudanum.

Mr Milner saw him about six o'clock. He immediately administered two scruples of the sulphate of zinc in solution, which, not appearing to operate speedily enough, he repeated the dose with half a drachm; and, having forced him to swallow large and repeated draughts of warm water, he vomited copiously. Two persons were appointed to shake him continually to prevent him from sleeping; repeated doses of tartar emetic were exhibited, and the epigastric region rubbed with tobacco-juice.

This treatment was continued till about half-past eight, when Mr Milner sent for me. On my arrival, I found Mr Galloway was already there, and that he had administered a solution of the sulphate of copper, which had operated powerfully. The countenance of the patient at this time presented a cadaverous appearance; the mouth and lips were pale and tumid, the conjunctiva inflamed, probably with the vomiting. Pulse about 100, irregular, but full. Respiration very deep, and sonorous. The muscles were in a complete state of relaxation, and he was obliged to be supported in a chair. He made no answer to any question, although put to him with a loud voice close to his ear. On discontinuing the agitation for a moment, he immediately relapsed into a state of stupor and insensibility. The only expedient which effectually roused him, was pulling him by the hair of the head. This was so completely successful on one occasion, that he rose from his seat in a paroxysm of anger, and attempted to throw off his jacket and vest, but immediately fell back in a state of insensibility.

About nine o'clock the coma became deeper, breathing more laborious, the face and lips assumed a more livid complexion, the pulse fell rapidly, and intermitted. In a word, he had the appearance of a man dying of compression of the brain. These symptoms induced me to suggest the propriety of blood-letting, with which Mr Galloway having readily concurred, I took away about ℥ xvi.

Immediately after the operation the pulse again rose to about 100, respiration easier, and the other symptoms of oppression were diminished, and continued to abate until about ten o'clock. He had then so far recovered, that Mr Galloway and myself left him in charge of a young medical gentleman, who was directed to exhibit the diluents from time to time, with small doses of the sulphate of zinc. Continued agitation was practised until near three in the morning, when the comatose symptoms having vanished, he was able to recognise the different individuals around him, and walked home, with support, to his own house, a few streets distant. Next morning he was sent to the Royal Infirmary, Edinburgh, but was discharged in a day or two.

This case differs from two detailed in this Journal by Mr Richardson, (Vol. XVII. p. 226.), in which venesection was efficaciously employed; in the one case half an ounce of laudanum having been swallowed, and in the other not more than three drachms. The patient here was a stout man, of active habits, and had formed his desperate resolution in a moment of intoxication. In the other cases the patients were females, one of whom had become a sufferer by accident. The deleterious principles of the opium would, in the present instance, be exposed to a more extensive surface within the stomach, in consequence of its ready union with the contents of that viscus. No acid was employed to correct the energy of the drug; and, as we know from the experiments of MM. Orfila and Sertuerner, that vinegar increases the activity of opium when taken into the stomach, it is fortunate this substance had not been made use of. Oil had been administered; but upon no principle could this be of any service, as it would be almost immediately ejected.

I am convinced, that had more blood been taken away in this case, the comatose symptoms would have been more speedily and decidedly lessened. As it was, the effects of the depletion were most evident. This fact is of some moment in cases where immoderate doses of opium have been taken, either accidentally, or for the purpose of self-destruction. Whether the soporose state which ensues be the effect of determination to the brain, or sympathy of that organ with the stomach, it is not here my province to inquire; although the coma and convulsions which supervene would naturally lead us to infer the former supposition. It is enough, that the inferences to be drawn from the experiments made by Orfila on the lower animals, as to the direct and immediate influence of blood-letting, when opium has been taken into the stomach, and begun to affect the system, appear to be happily confirmed, when the same remedial mean is had recourse to on the human subject. Such is the conclusion to be deduced from Mr Richardson's cases as well as the present; and the interests of science, not less than those of humanity, depend on the relation of such important facts. It is to be hoped, that future experience will decide as to the confidence which should be placed in this remedy, which promises to be a powerful auxiliary to the other curative means.

*Leith*, 31*st December*, 1822.

# XIII.

## *On a new Method of removing Ascarides from the Human Body.*

By William Howison, M.D., Lecturer on Materia Medica and Pharmacy, &c. &c. &c.

The principal cause which gives rise to ascarides, is stated by medical writers to be, unwholesome food with bad digestion. The former, however, can scarcely be said to be the cause, as ascarides are not more prevalent amongst the lower orders of society, than amongst the higher; which undoubtedly would be found to be the case, if the above remark was well founded. On the contrary, we daily meet with abundance of examples of ascarides in the higher walks of life, and amongst individuals who can command, and actually do subsist upon, the most nutritious diet.

Ascarides appear most frequently in individuals of a relaxed habit, and whose bowels contain a preternatural quantity of mucus, or slimy matter. Hence it is stated by medical writers to be a disease most common to children; but that they sometimes prevail in adults to a high degree, particularly in those who live chiefly on a vegetable diet. I know many individuals above adult age, who have been infested with ascarides for the greater part of their life; but I cannot say that it is peculiar to those living on vegetable food, having met with repeated instances of it in those subsisting upon animal diet, to which they were restricted by dyspepsia; and this disposition to ascarides evidently runs in families. I have known all the individuals of a family infected with them; and therefore am of opinion that they may be said to be hereditary, in the same manner as phthisis pulmonalis, mania, and scrophula.

It is not my intention, in these pages, to consider the different means recommended for removing ascarides from the animal economy. We are all aware that, however actively employed, they are tedious, slow, and even uncertain in their effects; that some of them are violent; and that, when long continued, they tend to injure the organs of digestion. Of all of them, however, I may be allowed to say, that I have, in the course of my limited experience, seen most benefit from the administration of the powder of tin combined with the seeds of santonicum, followed up, at regular intervals of a few days, by doses of jalap proportioned to the age of the individual. And to this method I should always give the preference, during the period of infancy and childhood. The removal of ascarides, by means of irritating injections, and it is only such that can prove effectual, or by external applications, as tobacco, turpentine, &c. to the stomach and intestinal canal, appears to me to be inconvenient and indelicate; and the feelings of the people of this part of the world are such, that they will never submit to the use of injections, except in cases of extreme urgency. The practice of the present day confirms this remark. Dr Heberden says, a repetition of gentle purges alleviates whatever uneasiness ascarides may occasion; but no internal medicines, nor clysters, can certainly be depended upon for extirpating them. Tobacco clysters and others, made of solutions of sublimate mercury, have had little or no effect.

In suggesting the present method of removing ascarides from the human body, it is requisite to bear in mind the following circumstances. 1*st*, That these animals infest every period of life, from infancy to a later period than adult age; 2*dly*, That they are confined to the lower extremity of the intestinal canal, occupying principally, or entirely, that part of the gut extending from the point of the finger, when introduced completely within it, down to the sphincter ani; 3*dly*, That when removed every twenty-four hours, their future generation will be prevented by the obstruction of their means of propagation; 4*thly*, and *lastly*, That this method of removing ascarides is inapplicable to the age of infancy.

The method of removing ascarides already alluded to, must be performed by the patient or individual infested by these insects, in the following manner. Previous to getting into bed, and when completely undresssed for that purpose, he is to bring his body into the semibent position, by leaning considerably forwards, supporting himself by means of his left hand resting upon his thigh, or a low table. Having previously besmeared the anus with melted candle-grease, which on such occasions is always at hand, or, what is preferable, with hogs-lard, he is to cover completely the middle finger of his right hand with the same unctuous substance, particular care being taken to have the nail of that finger cut short, so as not to scratch or irritate the internal surface of the rectum. With his body in the position above described, he is next to introduce this finger gradually and cautiously up the rectum, until the hand coming in contact with the sphincter ani, prevents its further introduction.

When the sphincter ani muscle is in a state of relaxation, which it generally is, this step of the operation will be effected with great ease, and without giving the slightest pain. When in a state of spasmodic contraction, which however seldom happens, it then becomes more difficult; and if this contraction should be present to a considerable extent, it will be proper to defer the introduction of the finger until it has completely gone off. The point of the finger within the rectum is then to be rubbed along the whole inner surface of the gut, bringing it gradually downwards, until it comes out at the anus, when the whole mass of ascarides occupying the rectum will be brought out upon the finger near to its point, rubbed into the form of a ball enveloped in mucus and unctuous matter. The first bringing out of the finger, if properly performed, will be found to have removed the ascarides completely, as, upon repeating the operation a second or a third time, nothing will be brought down but mucus, thrown out in great quantity by the increased action of the glands of the gut, irritated by the second or third introduction of the finger.

This operation is to be repeated every night, when, in a short time, the gut will be completely cleared of ascarides. Their further means of propagation being removed, the symptoms produced by them will cease, and the individual be restored to perfect health. I may also remark, that when the ascarides have been several times removed in the above-mentioned way, they are observed to diminish in size; a proof that the older or full-formed ones have disappeared, and that they are succeeded by their offspring, which have not been allowed to come to maturity.

When the rectum is loaded with fecal matter, some obstruction is offered to the introduction of the finger; and the intention of the operation, the removal of the ascarides, is considerably frustrated.

From what has now been stated it is obvious, that ascarides can be removed from the intestinal canal by a manual, or, what may be termed, a surgical operation, altogether independent of the skill of the physician; and that it presents many advantages over the methods formerly in use. The suffering individual gets rid of the noxious animals, in which his disease consisted, without swallowing unpleasant medicines, which impair the organs of digestion, without wetting his belly by fomentations or liniments, and without distending the intestinal canal by irritating injections.

9, *Nicholson's Square,*
*December* 1822.

# XIV.

## *Case of Ischuria Renalis.* By FREDERICK BROWN, M.D., Assistant Surgeon (3d Dragoon Guards).

OCTOBER 28th. SERJEANT-MAJOR DANIELS, æt. 47, reported having been ailing a day or two with symptoms of indigestion. When visited, he complained of some slight pain or uneasiness on the right side, midway between the crest of the ilium and last false rib, rather towards the spine; states that he was once or twice unwell at Piershill Barracks lately, but never had stoppage in his urine before; and that a dose or two of purgative medicine gave him relief.* He has been a free liver in the earlier part of his life. He desired to be bled; and as he is a corpulent plethoric man, it was complied with. Some eructations and dyspeptic symptoms present; but his skin, tongue and pulse, natural.

℞ Pulv. rhei ʒiss. Tinct. sennæ ℥ss. Spts. æther. nitros. ʒij. Aq. ℥vss. M. Capt. ℥iss. statim et rep. 4ta quaque hora. Mitt. sang. ℥xviij.

29th.—Physic operated well; says the pain is in a great measure relieved; pressure does not increase it. Pulse, skin, and tongue natural; still troubled with eructations. Blood drawn yesterday has rather larger proportion of crassamentum, but no buff. Now mentioned that he had not passed any urine for thirty-six hours, and that he was much swelled. Immediate and minute examination was instituted; but there did not appear any accumulation of urine in the bladder. Being a remarkably corpulent man, however, it was judged necessary, as a matter of precaution, to introduce the catheter, which was difficult in the upright posture, but succeeded instantly when placed on his back. The finger being introduced *in ano*, the prostate gland appeared a little enlarged. Says that the uneasiness existing cannot be called pain. No urine followed the introduction of the catheter, and it was sufficiently evident that no urine was secreted. At the evening visit he was found sleeping calmly; and his wife said the medicine had freely operated, and he had passed a small quantity of urine.

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* Mr Marsden, surgeon to the regiment, informs me, that, by referring to his Diary of Out-Patients, he finds, that Serjeant-major Daniels was three times indisposed during the time when the head-quarters of the regiment were at Piershill;—the first time of pneumonia, the second of cattarh, and the third of constipation of the bowels. The attack of pneumonia was so severe, that he took thirty ounces of blood from the arm at the first bleeding; the catarrhal affection was removed by cathartic and antimonial medicines, aided by confinement to his bed; and the constipation, which was attended with severe pain, by fomentations and cathartics, preceded by venesection.

Cont. mist. ut heri. Emp. canth. super situ doloris.

30th.—Passed a very good night, without any increase of pain, although he says it shifts about, and seems now to attribute it wholly to the blister. Pulse 86, and soft. There has been no desire to void urine; but he got up in the night to try, in consideration of its being necessary, and passed about a tablespoonful.

Rep. mistura.

8 o'clock, *vesper.*—Several stools were produced by the medicine during the day, and thinks half a pint of urine might have been passed at the several dejections. Great disposition to sweat observable, which breaks out profusely on his falling asleep, but without any urinous smell, or otherwise.

31st.—Slept well; had two motions during the night, and thinks something less than half a pint of urine was voided, nearly free from pain. Pulse, skin, and tongue natural; no thirst; takes little sustenance. 4 o'clock, *p. m.*—I have visited this patient two or three times casually this morning, and each time found him bathed in sweat, and breathing deeply. He is easily aroused, on being spoken to, but immediately falls asleep again. His wife says she has observed a disposition to drowsiness some days past, but did not think it of importance, and by no means in the proportion now present. He was immediately bled to the extent of 40 oz. About one and a half oz. of urine flowed about 12 o'clock. 6 o'clock, *vesper.*—Blood taken much buffed and cupped, pulse 86, and somewhat obsure.

℞ Calomel. gr. viij. in forma pil. stat. sumend. et cras mane cap. haust sequent. ℞ Jalap. ℈ij. Rhei. gr. x. Aq. menth. pip. ℥iss. Ft. haust.

November 1st.—Bowels moved three times in the night, pulse 84, more free, but somewhat hard; says he has no pain. Skin cool and moist, tongue clean, no thirst, some stertorous sleep. Medicine in full operation. About three-fourths of a pint of urine evacuated while at stool. 2 o'clock.—Some disposition to sleep; says he has slight pain in his forehead occasionally; again bled to ℥xxxvj. 4 o'clock, *p. m.*—Medicine acted powerfully four times; in other respects the same, blood much buffed and cupped. No foulness of tongue, heat of skin, pulse 86.

Emp. canth. nuchæ admovend. stat.

2d.—Slept well; says the uneasiness continues in the right side. Pulse 80, moderate, calm, and more distinct and compressible, tongue slightly furred at its base, does not complain of thirst, takes no food, and very little tea. Bowels unmoved during the night; about 4 oz. of urine flowed. 4 o'clock, *p.m.*—Nearly the same. 10 o'clock.—The disposition to deep sleep has been less prominent this day. Pulse to night, in a recumbent posture, 88, no heat or thirst, tongue covered at the base with a brownish fur, bowels moved twice, but no urine secreted.

Haust. purgans repet.

3d.—Slept ill, with some wandering. Pulse 84, full, but not hard, only half an ounce of urine, tongue moist and clean, no thirst, or heat of skin. 9 o'clock, *ante merid.*—He was visited, and bled to 16 oz. At 7 o'clock, blood cupped, &c. as before; now sleeping calmly, and without that profound breathing hitherto remarked. The following draught was given, and ordered to be repeated every two hours.

℞ Tinct. digit. gt. xv. Scillæ. gt. xv. Aq. menth. ℥x.
Ft. haust stat. sumend. et repet. omni bihorio.

1 o'clock, *p. m.* Has been sleeping since last report, save when roused to take the draught, which he readily does; enters readily into conversation, but, on being left, relapses. Being much urged to describe any pain or uneasiness; he says that he feels an uneasiness stretching from the first blister to the umbilicus. The cupping-glasses were immediately applied over the loins. About 10 oz. of blood were taken speedily, and he was immersed in a warm bath, the temples being bathed with cold water and vinegar. No secretion of urine; draughts strictly exhibited. 6 o'clock.—Pulse 86. 10 o'clock.—Complains of giddiness. Pulse 90, tranquil and soft; no thirst, heat, or secretion of urine.

4th.—In the earlier part of the last night he showed much restlessness, but no febrile symptoms; in the latter part he slept quietly and calmly. 2 oz. of urine passed between 10 o'clock last night and the same hour in the morning. Some aberrations of mind. Pulse 88, natural. Arose once during the night with desire to void urine, but none flowed. Bowels unmoved.

Jalap. ℈ij. Rhei gr. x. Aquæ menth. q. f. haust. Ext. col.
c. gr. x. Cal. gr. ij. stat. sumend.

2 o'clock, *p. m.*—Bowels moved once, scantily, with scybalous appearance. Some warm tea and the pills, (see ℞). 4 o'clock.—Considerable wandering; medicine not operated; in other respects similar to last report.

Enema commun. stat. injic.

10 o'clock, *p. m.*—Injection retained two hours; an hour afterwards 3 oz. of urine followed, which, being received in a

glass, was full, but without any lateritious sediment. Visited several times in the day; delirium considerable on being awakened, but otherwise sleeps constantly; cannot be persuaded to take any sustenance; no other secretion of urine; some little febrile accession; pulse 90; head ordered to be shaved, and washed with vinegar and water.

5th.—About two o'clock this morning he became restless; passed a few drops of urine, and remained tranquil; considerable delirium, with disposition to subsultus. Magnes. sulph. ℥ ij. stat.

8 o'clock, *a. m.*—No action in the bowels or secretion of urine. Being spoken to by myself answers readily, but does not mind the attendants, and sinks into lethargic stupor while being spoken to; cannot be persuaded to take any nourishment, even a small quantity of fluid, but swallowed the salts readily.

6 o'clock, *p. m.*—Still continues the same; lethargic stupor, with delirium, when awakened; medicine had not operated at three o'clock, and an enema was given; pulse 84.—9 o'clock, enema given retained, indeed seems quite lethargic; pupil readily contracts, however, on approach of the candle; enema repeated; pulse 100, smaller; profuse perspiration all over the head and breast; stupor rather increased with subsultus. Ext. col. comp. ℈ ij. Solve in aq. cal. ℔iss. ol. oliv. ℥ ss. ft. injectio.—12 o'clock. Enema has come away, bringing away much feculent matter; sweating continues; nearly insensible; seems sinking. Emp. canth. applic. capiti.

6th.—Remained nearly in the same state until about five o'clock, when he sunk, and expired.

### *Appearances on Dissection twenty-eight hours after Death.*

*Head.*—On removing the skullcap, the saw penetrated the dura mater, and allowed the escape of a considerable quantity of serous fluid of a reddish colour, marking effusion on the surface of the brain. The dura mater *considerably* thickened, the vessels of the pia mater much distended, and very numerous. This appearance was continued throughout the surface of the brain, dipping amongst the convolutions through the doublings of its membranes. Removing the hemispheres at the level of the *corpus callosum*, the bloody points in the horizontal divisions were less numerous than usual. A small quantity of serous fluid in the lateral ventricles, scarcely exceeding that usually present some hours after death; cerebellum, corpus annulare, and medulla oblongata, natural.

*Abdomen.*—A longitudinal incision through the parieties showed great accumulation of fat; bowels and peritoneal covering healthy; liver, spleen, and pancreas healthy. Removing the peritoneal cover, the kidneys imbedded in fat, and much enlarged. The *right* being removed with its ureter, its external surface evinced marks of high inflammation; divided longitudinally from its convex margin, the mammary processes with their papillæ, much inflamed, and in one the vessels so distinctly marked as to appear artificially injected; the pelvis of the kidney thickened and ulcerated, the ulcers raised on the surface with jagged edges, and their surface covered with a dark ashey-coloured matter; the opening into the ureter not enlarged. About two inches down the canal a hard substance was felt, resembling a small kidney bean, and somewhat of its shape, which, being exposed by the scissors, presented a stone of yellow-white or light-brown colour, granulated surface, weighing 8½ grains; whilst handling it separated into two pieces, the smaller portion appearing slightly agglutinated on the top of the larger. The stone was not contained in a sac, but apparently in a pouch, formed by a regular distension of the whole canal, the calibre of which, neither above nor below, appeared enlarged or inflamed. The *left kidney* presented externally the same appearance, the membrane lining the pelvis was not ulcerated, the mammary processes inflamed; about one inch from the opening into the kidney down the ureter, empouched, as in the other, was a similar stone, weighing 5½ grains. The ureter bore no marks of inflammation.

*The Pelvis.*—The bladder was wholly empty, and presented nothing unusual. It was not removed from the body.

*Analysis of the Calculi.*—Portions of 1½ grains were submitted as follows:—1st, To boiling water, very partially dissolved. 2d, To nitric acid, produced effervescence, and, on employing heat, produced a fine pink colour. 3d, To muriatic acid, by which it was hardly acted on at all. 4th, To a solution of potass, by which it was wholly dissolved. From this it was precipitated by nitric acid. The precipitate being evaporated, produced a fine rose colour. Muriatic acid did not produce any precipitate. 5th, When tried by the blowpipe before a spirit lamp, it produced decided smell of ammonia. It is therefore probable the calculi are principally composed of the uric acid.

So far as I know, this disease is but little mentioned amongst our medical writers, either from its being one of comparatively rare occurrence, or from its obscurity and admixture with other diseases, as gout, rheumatism, &c.

The particular points in this case which I deem worthy of attention, arise chiefly from the obscurity of the accompanying symptoms, and are,

1. The very great degree of inflammation which existed without pain or symptomatic fever; the only symptom actually present being the appearance of the blood drawn.

2. The existence of stones in the ureter without producing spasm, &c.; for, from their being no dilatation above the stones, or inflammation in the canals, I consider them formed, or at least considerably augmented, during their confinement there.

3. The cause of inflammation in the kidneys I consider to have been mechanical distension, in consequence of the urine not passing freely down the ureters; which canals, as before stated, neither partook of the disease or of enlargement.

4. The immediate cause of death was doubtless the effusion on the surface of the brain; but if the apoplectic symptoms are to be attributed to the simple escape of the watery and saline portions, commonly thrown off by the urinary secretions, why should the effusion not take place into other cavities?

*Carlisle, November 15th*, 1822.

# PART II.

## CRITICAL ANALYSIS.

### I.

*First Report of the General Board of Health in the City of Dublin, most Respectfully Submitted to the Most Noble* Richard Marquis Wellesley, *Lord Lieutenant General and General Governor of Ireland.* Dublin. 1822.

The situation of Ireland at the present moment, cannot fail to give rise to feelings of the greatest anxiety and interest. A country much more extensive than Scotland, and not much less so than England,—consequently fully one-third of the geographical extent of the British dominions—favoured with many natural advantages of soil, climate, and situation,—abounding in population, and opulent in the means at least, of rearing and augmenting it;—yet with the great mass of its inhabitants in a state of physical misery, and moral and intellectual degradation, not much above that of the perishable denizens of the forest,—is undoubtedly a solecism in the history of human civilization. It is indeed impossible to know the almost uninterrupted scenes of misery, vice, and internal distress, rendered infinitely more dreadful by the frequent ravages of famine and disease, without at once wishing sincerely and ardently, that we knew the causes, and could command the means of applying a remedy to the sufferings of this unfortunate division of the human race. To know that fully four millions of our fellow-creatures are in happiness or misery, welfare or distress, will be a matter of indifference to none;—to contemplate that number of our fellow-subjects enduring physical privations of every description,—though not deficient in natural endowments, yet destitute of the means of correct, moral, and intellectual training,—the ready and unresisting prey of disease, reduced in short to a state of existence, in which life cannot be said to be more than endured, is a subject, that may well claim the serious investigation and active benevolence of all, who have the interests of the empire at heart.

Of the numerous and complicated evils, under which this unfortunate country continues to suffer, it is not easy to say whether any one is the cause of the rest,—or whether they all arise from one common origin; yet it is not to any penury of opinions, or any scarcity of inquirers that we are to ascribe this uncertainty. Between the shrewd politician who sees all in errors or mistakes of administration, and exclusion of the Catholic population from the high political privileges and benefits of the children of Protestantism,—and the moral spectator, who recognises all the calamities of the Irish peasantry in their total ignorance or imperfect instruction, in their dissolute and irregular habits, and in their incapacity to pursue steadily the proper objects of their welfare, it is hard to say where the truth lies, or whether we ought here to expect to find it. It is certain that there are many wise and soundly thinking persons, who consider the Irish character very similar to that of other nations,—capable of much good and much evil, but at least richly stored with the elements of what might be rendered excellent;—and who ascribe their involuntary faults, and inevitable wretchedness, to the want of that spirit of activity and salutary exertion, which is generally produced by the residence of rich families, or the enterprise of great capitalists. Others again, of a spirit still more generalizing, to whom the actions and feelings and conduct of men appear to depend on physical causes only, perceive all the misfortunes and distresses of the Irish peasantry in the endless multiplication of the tuberosities of the prolific potato; and would wrest from the hands of the starving labourer, without perhaps providing a suitable substitute, the only and best resource with which his soil supplies him to sustain a life, from which hope is excluded, by the listless ignorance of nothing better, and to which every sun adds only another day of suffering and penury. It is perhaps not difficult for the unprejudiced mind to see, that none of these causes is individually sufficient to account for the effect; for we know, and can conceive states of society and communities of men, in which the same disabilities, and the same or similar disadvantages certainly do not give rise to the same wretchedness. We think it would be possible to show, that the influence of these causes is at least much exaggerated, and that the happiness or comfort of the labouring classes would not be materially or directly affected by a change in the circumstances to which we allude. This, however, is not the proper place for such inquiry; and we have before us the examination of matters, which appear to us to bear much more directly on the point at issue.

The prevalence of disease among the Irish peasantry and labouring orders in general, has been presumed to be very closely connected with their mode of life and means of subsistence; and the epidemic fevers in particular, by which one county has been successively ravaged after another, have given evidences too distinct and unequivocal of their origin, and of the circumstances which have favoured their propagation, to allow the notion to be entirely neglected or denied. To be satisfied, however, with this vague and general conclusion, would have been unscientific, and, if not improper, at least not a step to be commended. It was desirable, not only to ascertain this important point, but also to collect all the collateral information which could in any degree illustrate it; and above all, to obtain accurate and precise knowledge of the actual state of the labouring poor of the country, to discover the circumstances in their condition which could favour the production and propagation of disease, and to collect materials for constructing a system of directions, which might be useful in preventing the accession of any future epidemical disease, in checking its dissemination, or in obviating its ravages. With this object in view, the Board of Health was established by authority about three years ago in Dublin, and vested with full powers to make the necessary inquiries for accomplishing the purpose of their creation. We had, at that time, * occasion to notice the institution of this Board, and to communicate a short account of its nature and object; and, that these might be more fully understood, we laid before our readers not only the plan of Regulations recommended by Mr Secretary Grant for the guidance of the Board, but also a correct copy of the Circular Letter containing various queries, the answers to which could not fail to communicate a great proportion of minute and useful information on the domestic condition of the labouring orders of the country. Copies of this Circular were addressed to the noblemen, gentlemen, clergymen, and physicians resident in the country; and we are informed by the Board, that the answers have been numerous, and on the whole satisfactory; and that many persons of rank, respectability, and intelligence in different parts of Ireland, have interested themselves in obtaining and communicating the most

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* Vol. xvi. p. 621, or No. 65, Medical Intelligence.

authentic information possible. As these communications, however, are, from their very nature, too voluminous to be included in the present Report, the Members thought it most expedient to direct the attention of his Excellency the Lord Lieutenant, to the condition of Munster only,—the largest province of Ireland, where the population, as they remark, is very numerous, and the circumstances in which they are placed very peculiar and characteristic.

" The substance of the different replies is here given in a condensed form. In many instances, the words of the reporter are adopted, whenever it was thought these could not be contracted or altered without injury. The replies thus condensed or extracted, are digested in a methodical form under the several heads, as in the original Queries, viz. of " Dwellings, Clothing, Diet, Fuel, Employment, Contagion, Endemic, and General diseases, " and are also marked by Roman numerals. The particular query replied to under each of these heads, is expressed by an Arabic numeral. The authority is given at the foot of the page, and thus the responsibility for particular statements rests with the correspondents, the Board not holding themselves accountable for the opinions which are given in this part of the report. They conclude these remarks by observing, that the queries were forwarded to the several correspondents principally during the year 1820; many of whom replied speedily, but answers did not cease to be returned till the latter part of the summer of 1821, and of course refer to the time included between these periods." pp. 13, 14.

On the whole, we regard the inquiries of the Board of Health, and the publication of its Reports, as by far the most direct and probable method of ameliorating the condition of these unfortunate people; and we think that the institution of this body of benevolent and intelligent men, by the direction of the distinguished personage who was then at the head of the Government, and the attention which the present Lord Lieutenant is well known to bestow on every subject connected with the improvement of the country, are sufficient pledges of the readiness and certainty, with which all rational and practicable plans for relieving and removing the distresses of the Irish peasantry, will be adopted. That, however, our readers may form their own opinions, we proceed to lay before them a short account of the information conveyed in the volume before us. An abstract of an abstract, must necessarily be both brief, and perhaps imperfect; and we shall merely request our readers to ascribe our brevity or omissions, to the limited space within which we are necessarily confined.

Munster, the most southern of the four provinces of Ireland, comprehends 9276 English square miles, and contains the six counties of Waterford, Cork, Kerry, Clare, Limerick, and Tipperary. It is the largest, and, if we except Ulster, the most populous part of the whole island; and though, in many places, wild and waste lands are to be found, it may, on the whole, be taken as the most cultivated district of the country. Occupying a great proportion of the southern part of the island, from the mouth of the Barrow, which flows between Wexford and Waterford, to Galway-bay in the north-western extremity of the county of Clare, several of its component counties are necessarily maritime; and much of it is indented by deep bays and spacious estuaries, while the coast itself is bold, rocky, and iron-bound, in consequence of the mountainous nature of the adjoining country. The southern border and interior part of the county of Waterford presents an extensive tract of mountainous and uncultivated land, which, commencing near the Suir, proceeds eastward by Lismore towards the Blackwater, in the barony of Fermoy; near this they run into two different ridges, one to the north in the county of Limerick, the Galtees chain,—the other forming the extensive elevated district, which composes the eastern and northern part of the county of Cork. The whole of this division of the county is in a state of nature, little cultivated, and principally occupied in grazing; and in the barony of Muskerry, through which chiefly this elevated ridge may be traced, the wild land of the Boggra mountains and the adjoining plains, covered with heath and bog, are employed in rearing numerous herds of cattle. At the eastern border of the barony of Muskerry, this mountainous line changes its direction, and, proceeding southward through the baronies of Bear and Bantry, forms several points of considerable height, as the Gowl mountains and Hungra-hill, and, terminating in the sea, renders the coasts of these baronies particularly bold and precipitous. The spacious estuary, named Kenmare river, forms here the eastern boundary of the county, and separates it from the contiguous one of Kerry, a county more completely maritime than any other, in consequence of its being naturally divided by Dingle-bay into two large peninsular districts. The more northern of these lying between Kenmare estuary and Dingle-bay is by far the most wild and mountainous, and is well known to present the most elevated land in Ireland at Mangerton-hill * and Macgillicuddy's reeks. † This mountainous district, which is a continuation of the Cork heights through the barony of Muskerry, occupies a very considerable space of the superficial extent of the southern division of the

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* 2693 Feet. Kirwan.

† 3405 feet. Kirwan.

county; and, between barren rocks, unreclaimed bogs, and uncultivated wastes, gives the face of the country a wild and cheerless, but somewhat romantic aspect. The northern peninsula of Kerry lying between Dingle and Tralee bays, though not presenting land so elevated as the southern, is nevertheless very hilly, and consists almost entirely of the Dingle mountains, a continuation of the Galtees chain, which, we have already said, runs in an eastern direction through the county of Limerick. Between Tralee-bay and the Shannon, a small patch of land forms the most northern part of Kerry; its appearance is very similar to that of the rest of the county,—more wild, if possible, and less traversed by roads, and other traces of improvement; it is, however, not quite so elevated, though it terminates abruptly in a lofty promontory, known by the name of Ballyheigh, or Kerry-head. Clare, the northern county of the province, which lies between the Shannon and Galway-bay, is uneven and hilly; the banks of the Shannon and Fergus are marshy, and afford rich pasture; the rest is, in general, a dry, rocky surface, without trees or much vegetation; and the coast, which is formed of basaltic rocks, is remarkably bold and precipitous. Of Limerick it is unnecessary to say much; though not particularly hilly, it is bounded on the south by the Galtees chain, some of the highest country in Munster, as may be believed from the circumstance of most of the rivers of the province rising in this chain, and flowing in opposite directions to the sea. Tipperary, entirely inland, presents extensive tracts of uncultivated mountainous land; but its level country, which is as rich and fertile as any in the empire, is, like the arable land of Limerick, chiefly occupied in grazing, or in rearing and preparing hemp and flax, the staple commodities of these districts.

This short view of the natural surface of Munster will prepare our readers, in some degree, for the perusal of the Report. The state of the people corresponds in every respect, except that of population, with the aspect of their country. Numerous to an extreme, considering the degree of cultivation in the province, they are living in the most deplorable state of penury, filth, and general wretchedness, and are at the least, in many respects, much more helpless and debased than the natives of the most remote and desert parts of Scotland were about 70 or 80 years ago. In Munster, the peculiarity seems to be, from the present Report, that there are few or no exceptions to this extensive scene of human suffering;—and that, unlike some other examples of this, where the majority at least are comfortable, and only the few in a state of misery, the great mass of the labouring population presents a general and uniform desert of domestic and individual distress. Wherever the eye is bent over this province, it can recognise no spot exempted from the common and general causes of calamity. The young and the old, male and female, the active and the indolent, the labourer, the husbandman, and the artisan, are all indifferently overwhelmed in the same gulf of inextricable ruin, misery, and despair.

I. The first subject of which the Report treats, is that of the dwellings of the Irish peasantry in the province of Munster. In general they are of the most wretched description, constructed apparently without any views to the comfort or health of the inmates; badly situated for the purposes of cleanliness or salubrity, and with almost no contrivance for proper ventilation or salutary warmth. In the counties of Cork, Tipperary, and Limerick, the cabins are so built, that their moist, muddy floor is below the level of the surrounding ground; and in some parts of the county of Cork this descent is so great, as to place nearly one-third of the building beneath the surface. The walls are generally of mud, or a mixture of clay and straw; and some places of Tipperary, as in the neighbourhood of Templemore, are stated to be the only parts of the province in which these miserable hovels are constructed with limestone walls, sometimes without any mortar, or with a scanty proportion of this material. The roofs are generally straw, heath, rushes, or sods; chimnies are common in Cork and Waterford, and even in some parts of Tipperary; but in Limerick, Kerry, and Clare, this convenience is very rare in the construction of cabins, and, in many instances, totally omitted. A window is generally provided in the Cork and Tipperary habitations, but it is rarely so constructed as to be opened; and in the other counties light and air have generally no other entrance, and smoke no other exit than the door. An idea of the worst mode of construction will be formed by the following extract from one of the communications from the county of Kerry.

" ' The walls of the cabins are mostly built of mud or yellow clay. The thatching consists of straw, reeds, or rushes. The mud or clay is procured soft and plastic, the walls are then formed by the hand or with a trowel. No apertures are at first left for the door or window; but when the mud or clay becomes dry and hard, these are formed by cutting through the wall. The floors are in general sunk about a foot beneath the surface of the ground. The cabins are often built without any apertures for the admission of air and light; sometimes with them. A few have glass windows, but these are scarcely ever capable of being opened. Almost all have some passage for the smoke, but few have regular chimneys.' In the neighbourhood of Killarney cabins are built of mud, with the floor always below the surface of the ground, with no windows except a hole in the wall, which serves for the admission of air and light, by removing a handful of straw, which is usually stuffed in at bedtime; a small hole in the thatch of the upper part of the gable serves as a chimney." pp. 22, 23.

These inconveniences are much aggravated by the inclination generally manifested by the lower orders, for carrying on all filthy and annoying processes in the immediate vicinity of their habitations. If a dunghill is to be formed for the necessary purposes of manuring their lands, all the materials are collected and piled up immediately before the door of the cabin. This custom prevails particularly in the counties of Cork, Waterford, Tipperary, Kerry, and Clare; it exists to a great degree in the neighbourhood of the town of Limerick; and at Carrick-on-Suir, in Tipperary, the poor are said to have had these collections of manure within the walls of their dwellings, and to have expressed great indignation at the interference of the Board of Health with their property.

The interior of these hovels is not at all inconsistent with their outward appearance and construction. Small and confined, generally consisting of a single apartment, or at most of that and a small space partitioned off as the dormitory of the family, from five to ten human beings, with a suitable proportion of brute animals, are their occasional inmates during the day, and their constant occupants in the night. The Report does not state the exact number, or the individual returns with precision; but we can perceive that the average number of inhabitants of a Munster cottage is about five or six persons, with a pig or two, a cow, or a horse sometimes, and very generally a dog. In the neighbourhood of Tralee, in the county of Kerry, each dwelling contains, on an average, about six human inmates, with a pig or two. At Ardfert, ten or twelve individuals often occupy one small room during the night. In the county of Waterford, and in some parts of the county of Cork, a single roof shelters the husband and wife, the aged parents and children, on the same straw-bed,—and the sow with its litter, the cow and watch-dog, in the same apartment.

" Their situation in sickness is miserable, and is the cause of spreading disease among them. Itinerant mendicants are also reported to contribute much to the crowding of their apartments. The consequences of this state of things within their dwellings are sufficiently obvious, and explain why whole families sicken when disease commences amongst them. In this county, among the poor class, the different members of a family occupy the same bed, which, in many or most instances, arises from the want of bedclothes. We are even informed that the inhabitants and strangers occupy the same bed. The pig has often a better bed than the master; and the cow, if the poor cottier has one, is housed in winter with the child. The account here given does not apply to the whole county; for we are informed, that, in the neighbourhood of Cork, the unmarried males and females sleep separately, and the houses are not large enough to shelter cattle. We presume also, that these statements refer to the poorest classes of the community only, and not to those whose circumstances place them above want. As to the practice of sheltering cattle in their dwellings, it should be observed, that none have cattle but those who possess land, and such persons are, for the most part, more comfortable than the lower orders in general. The practice of keeping animals within their houses is not confined to the country parts of this county; for even in towns of considerable size it is customary to rear pigs under the staircases, particularly where there are no yards behind the houses. This practice is certainly injurious to the health of the inhabitants." p. 27.

No other furniture, except that of bedding, is mentioned, and this appears to be of the most scanty and miserable materials; in the county of Cork, they have, in some instances, wooden bedsteads, entirely boarded in at bottom, top, and one side, the other being left open to admit the occupiers. Feathers are exceedingly rare. Straw, not of the best or freshest quality, is more common; and in the town of Tallow, county of Waterford, rushes, heath or furze, are oftimes substituted for the straw. In Tipperary, it is, if possible, worse.

"The scarcity of bed-covering induces many to sleep in the same bed in order to procure warmth, and many have little other covering than their ragged day-apparel. At Templemore the condition of the poor cannot be worse. Straw is in general use, but rarely made up in ticks, or changed as often as is required. The children sleep with their parents, to the number of six or seven; there are seldom any bedsteads. The want of covering is very great. At Clonmel the condition of the poor as to bedding is wretched; they sleep on straw, seldom changed, and frequently on the damp ground. In the parish of Drangan, barony of Middlethird, the bedding in even the better cabins is represented to be generally poor and filthy. Where there are feather-beds they are dirty in the extreme, as also the bedclothes. The bedding in the poorer cabins is miserable; the beds composed of rushes or straw, which is often scarce. The bedclothes almost none, chiefly consisting of a torn blanket and whatever body clothes the poor people may have." pp. 32, 33.

In the county of Kerry, hay, even when fresh and damp, is not uncommon for bedding; and in various parts of Clare, straw, rushes, or fern, are the ordinary couch. In all, blankets are so scarce, that their day-apparel is most frequently the only covering they can obtain during the night.

The 6th article of the inquiries on the state of the Munster cabins should have come last; it relates to the means of improving these abodes, and the disposition of the Irish peasantry to adopt suggestions of this description. These suggestions, which are numerous and appropriate, consist, in general, of proposals to construct them so as to have at least two apartments, to roof them with slates instead of straw or turf, to provide them with proper doors and windows, which may be shut and opened according to the state of the weather, and with suitable chimneys for the effectual escape of the smoke. One correspondent proposes to encourage the manufacture of windows with leaden, rather then wooden frames, which are more easily broken, and more expensive than those of lead. The elevation and consolidation of the floors, or where new cabins are to be erected, the choice of drier and firmer ground, are also generally recommended, as rational means of improving the health of the inhabitants. Various excellent suggestions for improving this necessary department of the comforts of the working orders are offered by correspondents; and the Board of Health have also directed their attention to the same subject, and proposed plans and models of dwellings suited to the poor, and caused them to be circulated through the province.

II. The *second* general division of the inquiries of the Board of Health, was directed to the subject of the clothing of the Irish peasantry, and lower orders. The Report shows, that the inhabitants of this description in the county of Cork are better clothed in general than in any other county of Munster. They are, in this respect, similar to the poor and labouring inhabitants of the large towns in England and Scotland, with the exception of the want of linen next the skin, which is almost unknown, and for which calico is a general substitute, especially with the women.

" In other parts of this province, the poor are reported to be clothed with coarse frieze, home-made flannel, grey or bandle linen. In the county of Waterford, the women wear stuffs manufactured chiefly by themselves. In the county of Limerick the poor are wretchedly clothed, and are very generally without shoes or stockings. This is also the case around Tralee. In some parts of the county of Clare, many are clothed comfortably in frieze, coarse linen, and with good shoes and stockings; but the poor are miserably clad. Their children are almost naked. By the poor, our reporter means one fourth of the population. They are wretchedly clad in the Barony of Islands. The high price of wool for the last two or three years has forced the poor to clothe themselves with old clothes of every description." p. 34.

Cleanliness, either of apparel or person, is rare,—chiefly, it would appear, in consequence of poverty, and want of education, or, rather, taste for this minor but necessary virtue. In the barony of Condons and Clongibbons, the same effect arises from a different cause,—the great distance to which the people are obliged to go, in order to cleanse their persons or their clothes. The same habits of filth are reported to prevail in Tipperary, Limerick, Kerry and Clare, and are in general attributable to the operation of the same causes. In all of these situations, the people are so poor that they almost never have a change of linen ; nor, if they had, have they the means of procuring the materials for cleansing their clothes; and the county of Waterford is the only place in all Ireland in which any attention is paid to this duty. It would appear, in short, that the most helpless penury has deprived them of all taste for attending either to their persons or clothing, and that they cannot imagine their state of existence susceptible of any amelioration in this respect. These circumstances cannot fail, at least, to favour the propagation of disease ;—in some situations they appear to have produced it. Wherever disease is communicated by contagion, it has been found to spread with irresistible rapidity in those parts, where the wretched inhabitants are least attentive to cleanliness. In the county of Kerry fever, measles, and cutaneous disorders are reported to be spread by infected clothing, and to the same cause a loathsome disease, named by the country people the running tetters (*impetigo ?*), extending rapidly round Mallow, is ascribed.

III. The diet of the poor forms the third general subject of inquiry ; and on this point, the information, though considerable, is not so minute or so precise as we should have wished. There is no subject on which we possess so much vague information, and observations of what might be called general inference, as that of diet; but this is not sufficient to the physician or medical observer, who requires to know not only what articles of diet are nutritious and salubrious, or morbid and deleterious, but also by what means, or in what mode, as far as this is practicable, they operate in producing their respective effects.

It is well known that the food of the lower orders of Irish is principally, often entirely derived from the potato, eaten either alone, or with milk in various forms, or with fish, or sometimes with a proportion of fat bacon. It seems, however, to be a point by no means decided, whether this is always, or in all circumstances, a very healthful or nutritious species of food. The general result of the opinions given by the correspondents of the Board of Health seems to be, that, when the potatoes are good, sufficiently cooked, and eaten with milk or fresh fish, they form a diet sufficiently wholesome; but that, if they be used either in a bad season, or in the spring, after they have begun to germinate, or if they be eaten in a half-dressed state, which it is believed has a tendency to prevent the speedy return of the appetite of hunger, they are generally observed to be succeeded by various diseases of the alimentary function; or by a state of general langour and weakness which renders the body more liable to the assaults of various maladies. A very obvious evil, however, arising from this article forming the principal food of the poorer classes, is, that in case of a failure of the crop, the misery and privation which follow, are extreme. When the potato crops fail, the diet of the poor is always insufficient in quantity, and consequently the worst kinds are eaten; and during the two months previous to the ripening of the new crop, they are always bad and unwholesome, and the poor are under the necessity either of begging, or of subsisting on a scanty supply of food, even less nutritious than the indifferent potatoes. Instances of this are evidently, from the Report, not uncommon; but those remarked in Tipperary are too important to be omitted.

" In the parish of Shanrahan, about the middle of summer, previous to the ripening of the potatoes, many of the poor are under the necessity of living on cabbage, seasoned with salt. This diet, the reporter justly observes, " from its bad quality, and from the despondency attendant on such circumstances, must be injurious to health." From the town of Fethard we are informed that, though this (1820) is a year of great plenty, the reporter is convinced that, from the want of means to purchase, many families have not a sufficient quantity of food. The quality is also far from good. *Dry* potatoes, that is, potatoes without milk, are very commonly the food of the poor, and the kind of potato now in use is far inferior to what it used to be. The people have of late cultivated a white soft potato, which is productive, and requires little manure; but it is a watery, relaxing, unwholesome food, and the reporter has no doubt that it generates and increases disease, and it is particularly ill suited to a climate which is of itself relaxing. He also believes that it holds out a temptation to the use of spirits; and he has been told that those potatoes produce effects on the bowels, for which whiskey is considered to be a remedy. Around Cahir, the poor are reported to be much in want of milk, as they cannot afford to buy it; nor is there sufficient in the country to supply them. Diseases of the viscera and dropsy are frequent at Roscrea, and are supposed to arise from insufficiency of food." p. 43.

Similar statements are given relating to the diet of the peasantry in the barony of Inaguinny, county of Kerry.

"It consists, as in the other counties, of potatoes, milk mostly sour, salt or fresh fish, and salt butter. The potatoes are often bad, and give rise to disease, particularly diarrhœa and dysentery. At Tralee and its neighbourhood the diet of the lower classes consists almost exclusively of potatoes, sometimes, though extremely seldom, conjoined with milk. The quantity they can afford to eat is certainly not sufficient, yet they are generally healthy. At Ardfert few of the poor have the means of procuring sufficient of even dry potatoes, of which their diet is chiefly composed. Fish is sometimes brought to the village." p. 44.

In the maritime counties, and along the seacoasts of the province in general, fish of various kinds, either fresh or salted, forms a part not inconsiderable of the diet of the labouring classes. The county of Waterford, which presents a considerable space of seacoast, is a good instance of this. Salt herrings, dry black pollock, and an inferior variety of Newfoundland cod, are not uncommon, and are much used by the poor of the town of Tallow. A considerable fishery, carried on at Dungarvan, has actually ameliorated much the state of the working classes; not only affording a cheap and nutritious article of diet, but supplying much employment to the young and active. Cork possesses, in some respects, the same advantages, and has in some degree availed herself of them. Great quantities of sprats are brought from Kenmare, Bantry, and Kinsale, to the interior of the county in the neighbourhood of Macroom; and in the island of Cape Clear, where fisheries are much encouraged, the people are said to subsist chiefly on this article of food. Kerry and Clare, both maritime districts, enjoy the same advantages. At Tralee, in the former, salt herrings, dried hake, and dog-fish, form a considerable part of their diet, though the principal supply is derived from Dingle, twenty-two miles distant; and the poor of Killarney are chiefly sustained on salt herrings and potatoes during the winter, when the milk is scarce. The coast of this county is reported to possess peculiar advantages for a regular system of fishing; the seas abound in great variety of excellent flat fish; and if the poor inhabitants were enabled to command a supply of boats, nets, lines, and other necessary implements, they have sufficient diligence and activity to render their maritime situation a source both of permanent emolument and subsistence.

Tipperary and Limerick, both inland counties, are less favourably situated for obtaining regular and cheap supplies of fish. In the former, fish, especially salt herrings, are much used in Lent. Clonmel, which is about twenty miles from the sea, is supplied from Dungarvan, chiefly with hake and herrings, which are not unreasonable in price; but the supply is very irregular and precarious, in consequence of the bad road between it and Dungarvan. At Roscrea, corned eel, dried ling, whiting, pollock, salt herrings and eels, are pretty abundant; but it is obvious, from the circumstance of those only using fish who can afford it, that the greater part of the county is but indifferently supplied with this article.

Limerick, which is bounded on the north by the Shannon, might therefore be supposed to be always well provided with fish; yet it is said to be equally scarce as in Tipperary; and in the city of Limerick itself, fish is scarce and high priced. In the Shannon, however, salmon, trout and eels, with small soles and plaice at certain seasons, are caught in quantities; but they are inadequate to the demand; and the ordinary market is supplied from Galway, Kinsale, sometimes from Youghall once a a week, when the weather is mild. The poor are obliged to satisfy themselves with herrings, which are probably very indifferent in quality, as they are said not unfrequently to cause complaints in the bowels. It is indeed quite evident that the quality of the fish, unless they are salted, must be somewhat indifferent after a long land carriage, either from Galway across the whole county of Clare, or from Kinsale or Youghall, over Cork and Limerick itself. When any article of food is scarce, it is almost uniformly at the same time of a bad quality, either because the same cause which gives rise to the scarcity renders it also bad; or because, when the market is sparingly supplied, all the inferior sorts are necessarily brought into it to meet the demand.

The Report does not mention any other species of food as in common or general use among the labouring classes of Munster. Oatmeal is said to be used in cakes in the neighbourhood of Macroom in Cork, and Ennis in Clare, when potatoes are scarce; but the heartburn, which follows it when eaten in any quantity in this manner, renders its use by no means general. Bread is never noticed, unless in Tipperary, where it is said to be little used.

IV. Fuel is the next subject which occupies the inquiries of the Board of Health. In the maritime parts of the province, there is in general a supply of coal; in the inland districts, turf or peat is the principal fuel; and, where these are wanting or scarce, timber, brush-wood, furze, or even straw, heath, or dried cow-dung, are resorted to for the purpose of heating their cabins, or dressing their victuals. Such seems to be the case in the baronies of Fermoy, Condons, and Clongibbons in Cork, in the neighbourhood of Dungarvan in Waterford, and at Clonmel in Tipperary, where the scarcity and high price of turf and furze throw the poor into great distress in cold or inclement seasons. In other districts, as Limerick, Kerry, and Clare, though turf is not wanting, yet it is not procured at so cheap a rate, as to enable the poor to live in much comfort.

This scanty supply of fuel, and the consequent necessity of using bad coal, are, according to the correspondents of the Board, the origin of much disease among the peasantry. The information communicated under this head, is not so judiciously or distinctly arranged as might have been expected, and we are under the necessity of deviating from it, and adopting one of our own. The diseases, the formation of which is favoured by this cause, must take place in two modes;—either they are the effects, more or less immediate, of too scanty a supply of fuel, or they depend on the deleterious effects of a bad or noxious substance. Of the first mode of the generation of disease, numerous examples seem to have been furnished to the Board by their correspondents. In general, the defective supply of fuel seems to have operated in two ways, in producing this effect,—the one by not warming their cabins sufficiently, and thereby rendering them liable to those diseases which assail the human body when weakened by cold, humidity, or otherwise; or by thus preventing them from renewing the air of their miserable abodes, through the fear of cooling them too much.

" The deficiency of fuel is productive of many bad consequences ; for, independently of the effects of cold within their dwellings, this want must promote damp of clothing and bedding ; it must force the poor to close every aperture, in order to exclude the cold air, and compel them to crowd together in small rooms, or in the same bed, in order to obtain warmth ; thus the spreading of contagious diseases is promoted by an insufficient supply of fuel, whilst their food, from being insufficiently cooked, becomes indigestible, and unfit for the purposes of nutrition. One of our reporters with great truth affirms, that " fever, dysentery, asthma, consumption, scrofula, and cutaneous diseases, are caused and aggravated in this way. "—And " in the county of Cork, in the neighbourhood of Middleton, in tracts not far from Mallow, in the baronies of West Muskerry, Fermoy, and of Condons and Clongibbon, the want of fuel is reported to have favoured the extension of disease, particularly at the commencement of the late epidemic fever, when fuel was very scarce in this as in most parts of Ireland. " pp. 50, 51.

The other mode in which the defective supply of fuel has contributed to the formation and extension of disease, is the difficulty which it places in the way of dressing their victuals properly. It would appear, that in some parts, the poor never had a comfortable fire, unless when the potatoes were to be dressed, and that this was done only by handfuls of straw thrown into the fire successively. In other instances, it is said, that this only aliment was imperfectly dressed, in consequence of the want of fuel; and in warm weather, they are not unfrequently tempted to subsist on any substance which can be eaten without the necessity of boiling. The want of fuel operating in this manner, is said to give rise to various complaints of the alimentary canal, and produce a degree of general bad health and indisposition, favourable to the direct attacks of several formidable diseases. In this manner, dysentery, scrofula, mesenteric disease, consumption, and dropsy, are very often produced, or their formation much facilitated.

The defect or scarcity of this necessary material produces another inconvenience;—the coals of Ireland, and especially those of the Castle-Coomer pit, are much mingled with pyritic or other sulphurous minerals, and when in combustion, the smoke which they furnish is so noxious and irritating, that asthmatic and various complaints of the respiratory organs are said to be common, where they are used. Much of this inconvenience unquestionably is to be ascribed to the want of suitable fire-places, or the faulty construction of those chimneys which they have. Grates appear, from the account of the Report, to be rarely used, and in one instance where they were gratuitously furnished, the people took them down and returned them.* In like manner, chimneys are totally unknown in the dwellings of the peasantry of Munster; and all the correspondents agree in recommending the erection of these conveniences, as indispensable to the comfort of the cottagers. In many instances, however, the natives manifest a great dislike to innovation of any description, and do not seem to be aware of the advantage of any improvement in domestic convenience; so that any effort on the part of the wealthy orders seems to be viewed with jealousy and distrust, or rendered abortive, in consequence of their native independence or unreasonable prejudices. A good example of this, which is given in a very wrong place of the Report, may be mentioned here, where it is much more appropriate, as it evidently illustrates, at the same time, the want of fuel for dressing their food, and the reluctance which the Irish have to accept of any gratuitous assistance.

“ The inhabitants of a village five miles from Mallow are, during the whole year, extremely distressed from the want of fuel. Ballyclough is eight or nine miles distant from any bog, and even on the spot turf is too dear for the lower clases to purchase. To relieve this distress, Mr Coote Purdon had a limekiln constructed, with several boilers in its circumference; the kiln was to be constantly worked, the lime disposed of among Mr Purdon's tenantry, and the poor were supplied with nets, to send their potatoes to be cooked in the boilers twice a day. However, after the apparatus was formed at considerable expense, not an individual could be induced in a single instance to take advantage of Mr Purdon's benevolent exertions." p. 38.

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* Waterford. Report, p. 54.

V. The Employment of the Poor, which forms the fifth subject of inquiry, must detain us but shortly. It would appear, that the inhabitants of Munster have long been habituated to the practice of land-jobbing. The mode, in which the greater part of the surface is employed, rendered this a matter of necessity; for, as it is chiefly in the state of extensive pasture-farms, either for the purpose of grazing or dairy produce, it affords but little employment to the labouring class of the community in the subordinate duties of agriculture. Since the peace, however, the practice of land-jobbing has declined considerably, and has thus, in a great degree, taken away the sole mode of occupation suited to the Irish disposition, and thereby rendered them exceedingly helpless. We find, in the present report, ample confirmation of this in the statements given by various correspondents from their respective counties. We exhibit the general results in a tabular view, as at once most distinct and most compendious.

| *Counties.* | *Districts or Baronies.* | *Cities or Towns.* | *State of Employent.* | *Persons not employed.* |
|---|---|---|---|---|
| Waterford. | | Waterford,<br>Dungarvan,<br>Tramore,<br>Tallow,<br>Anne's Town. | Wanting, | 3000 |
| Cork. | - | - | - - - | 1-3d. |
| | | Cork, | Difficult, and difficult to be got. | |
| | | Mallow, | Sufficient, unless for carpenters and masons. | |
| | | Macroom, | Sufficient, unless during summer months, when provisions are high priced. | |
| | | Cape Clear, | Some individuals fishers and farmers,—generally employed. | |
| Kerry. | | | | |
| | Magunihy. | Tralee,<br>Listowel,<br>Castle-Island,<br>Ventry, | Deficient, and the labouring orders migrate to England during harvest. | |

| *Counties.* | *Districts or Baronies.* | *Cities or Towns.* | *State of Employment.* | *Persons not employed.* |
|---|---|---|---|---|
| Clare. | | Ennis,<br>Newmarket. | Five months in the year without employment,—so little that numbers are reported to be half naked and half starved in consequence. | |
| Tipperary. | Moyarta | | Very defective. | |
| | Islands. | | Very defective. | |
| | | Clonmel.<br>Tipperary,<br>Templemore,<br>Drangan,<br>Roscrea,<br>Cahir,<br>Fethard. | Quite insufficient for the laborious population. | |
| Limerick. | | | Great and general want of employment. | Scarcely 1-10th. |

VI. The two following subjects, Contagion and Endemic and General Diseases, are more purely medical, and more directly connected with the state of public Health, than any of those which we have yet enumerated; but the nature of the inquiry and the order in which its articles are arranged, have necessarily led to some anticipation. The arrangement indeed of this part of the Report, which has been evidently dictated by the original arrangement of the queries in the circular letter, appears to us less natural than it might have been; and we think it would have been more logical to have placed the third query of the 6th article, on the actual prevalence of fever in Munster first,—afterwards those clauses which relate to the circumstances under which the fever occurred and was diffused, and to the means employed to remove or check it; and, lastly, the facts or arguments which prove the influence of contagion, and the contagious nature of the fever. Although, however, this is our mode of viewing the distributions of the subject, and we are therefore inclined to employ it here; yet it is with much diffidence, that we venture to hazard it in this place, or to offer any suggestions on the merits of a Report, issuing from a body of gentlemen so respectable, and so completely qualified in every respect, as we know the members of the Board of Health to be.

On the prevalence of fever it is unnecessary for us to dwell. It has been too generally known to be doubted by any. It is sufficient to say, that it has now subsided in most parts of Munster, with the exception of the larger towns which are never completely free from it, especially among the poorer classes. In this situation are Waterford, Dungarvan, Tramore and Tallow (in 1821) in C. Waterford; Cork, Mallow, Fermoy, Macroom and Middleton, C. Cork; Tipperary and Fethard, C. Tipperary; the city of Limerick, and many places in the county of Clare.

On the means of cure or prevention, we have not space to enter minutely. It appears from the Report, that there is a general scarcity of hospitals, dispensaries, or fever institutions throughout the whole province; indeed it is inconsistent with the ordinary nature of human affairs, to expect to find such establishments, which can only exist in a very civilized and wealthy community, in situations where the necessaries of life are scarcely to be obtained. The disinfecting processes, which appear to have been chiefly lime-washing, washing and scouring, and sometimes fumigation, seem to have been employed with benefit; but examples are stated to have occurred in the city of Cork, and apparently at Mallow, in which all these means of eradication were unavailing. (pp. 80, 81.)

On the subject of Contagion, the inquiries of the Board have of course been directed both to those diseases in general which are understoood to spread among the poor in this manner, but more particularly to the communication and propagation of fever, and the means by which it may be prevented. The sketch which we have already exhibited of the domestic condition and habits of the labouring orders in Munster, will show how much the communication of infectious or contagious disorders is favoured and facilitated in the present state of the country. All the correspondents indeed of the board agree in ascribing the prevalence of infectious diseases, and especially the frequency and ravages of fever, to the circumstances of the poor inhabitants, under some one or other of the following heads.

Small crowded apartments;—crowding round the sick (p. 70) —Imperfect ventilation from this and other causes, as scarcity or dearth of fuel (pp. 50, 51, 53, 70, 71.)—Scarcity of bedding, bedclothes, &c. and in consequence the practice of sleeping in numbers in the same bed (31, 32.)—Scarcity of wearing apparel and inability to purchase it, causing them often to wear the clothing of persons who have been diseased (35.)—Filthiness in cabins;—especially the practice of keeping brute animals in them, (71, 72), with collections of manure or other substances liable to putrefactive or elementary decomposition, or in the immediate neighbourhood (70, 72).—Filthiness in person and apparel. Frequent holidays or want of employment, causing them to saunter about from cabin to cabin, till they meet in considerable crowds (70, 72.)—Practice of attending wakes and funerals producing the same effect (70, 71, 72)—Mendicity, and receiving mendicants into their houses (70, 71, 72, 73, Kerry; Fethard 75.)—Mendicants carrying about children affected with fever, (35, 72, 73 Dungarvan).

The last mentioned practice is exceedingly prevalent, and is ascribed to one or more of the following causes; 1*st*, General distress; 2*d*, Indiscreet marriages; 3*d*, The tendency of mendicity to increase, by diminishing the sense of shame attached to it when less frequent; 4*th*, The disposition of those, whom temporary distress has compelled to beg, to continue in that course. Another reporter ascribes it to idleness, want of employment, curiosity, and a desire of roaming from their native homes.

We have collected this enumeration of the reputed causes of contagion, or the circumstances rather which favour the operation of this agent, with the intention of saving our own space and the time of our readers; and the same reasons compel us to leave them to the judgment of our readers without any comment.

The last clause of this section on Contagion, relates to the prejudices which the Munster peasantry, who are almost all Catholics, seem to entertain against the suggestions or recommendations of professional persons of the higher ranks in general. These prejudices do not appear to be so rooted as is commonly believed; and the general result of the Report shows, that they may be removed, when their true interests are explained to the people, by those in whom they have confidence. For this purpose, the aid of the Roman Catholic clergy is wisely recommended. We refer to the Report itself for more minute particulars.

VII. Our limits will permit us merely to notice the subjects of the last article, the Endemic and General Diseases most prevalent in Munster. These, though formidable enough, are not numerous, and they are in general such as depend on exposure to cold and humidity, to bad or innutritious diet, or to the abuse of spirituous liquors, which is greatly too common through the whole province, especially on holidays. Agues, which prevail at Whitechurch in Waterford, are ascribed to stagnant water in the vicinity. Inflammatory affections, as pneumonia, pleurisy, dysentery, rheumatism, are reported to be common in the counties of Cork and Waterford, and in the parish of Ventry in Kerry. The same diseases, with cholera and diarrhœa, are frequent at Ennis in the county of Clare. Scrofula, acute and chronic disorders of the liver, with dropsy, are frequent at Templemore, Carrick-on-Suir, Fethard, and Roscrea in Tipperary, and at all of these places disorders of the digestive organs in various forms, but generally the result of bad food or excess in drinking, are very prevalent. Measles, chin-cough, and small-pox, are found among children in Waterford, Kerry, and Clare. Cutaneous diseases, mostly contagious, are frequent in Cork and Limerick, and a peculiar spreading eruption named tetters, and described as a herpes, but which seems to be some form of impetigo, is exceedingly common in Cork, Clare and Tipperary, but especially in Limerick and Kerry.

It is remarkable that inoculation, or rather variolation is very frequently practised in various parts of Munster, chiefly by a set of itinerant quacks, but also, as would appear, in the county of Cork, by some apothecaries, (p. 94.) The disease also prevails naturally, chiefly in consequence of the difficulty of rendering vaccination general among them; and sometimes it would appear from the imperfect or irregular manner, in which vaccination is practised. It will readily be supposed, that we were not surprised to find that small-pox had also appeared in individuals who had undergone the perfect vaccine disease. No manufactures at all affecting the health have been stated to be carried on in the province of Munster.

Having now concluded our account of those details which relate most immediately to the state of the public health of the province, it was our wish to take leave of a subject on which we could not dwell much longer with advantage. We cannot, however, close the Report, without adverting to the interesting matter collected from the various reporters by the Board, under the head of "Additional Information." This section contains many judicious observations, and much valuable information on the state of the Irish small tenantry, on the occupations in which they might be profitably employed, and, in truth, on every point relating to their welfare or distress. A very general complaint, from all of the correspondents, is urged against the system of absenteeism, and the want or scarcity of respectable landlords, and resident gentry in general. We confess, we do not feel inclined to ascribe so much to this cause, as it seems fashionable to do. It is an evil which will, unquestionably, be its own remedy in process of time; and every Irishman may rest assured, that however the great landholders may occasionally turn their eyes from their country for a series of years, it is quite impossible, that the great bulk of the respectable part of the community, can be long away from their native fields, without material injury to their property and fortunes. We wish, indeed, it were possible for us to convince these voluntary exiles, how much their presence, or occasional residence, would actually augment their own revenues, and how much more valuable it would render estates, which at this moment must either be very much *racked* and exceedingly over-rented, or are unproductive, or literally valueless. We must, however, again repeat, that we think this of little consequence; we would have no restrictions or obligatory statutes compelling landlords to reside; much less can we perceive the justice or propriety of a penalty on non-residence; for we are satisfied of the correctness of the principle in political economy as in general science, which allows every one to follow the bent of his own inclination, and to pursue his interest in his own way; and that national wealth and prosperity can never be promoted in any other mode than by simply affording a protecting power to the individuals or bodies who are actively, but lawfully, engaged in promoting their own views, and advancing their own interest. There are districts in the empire, where the resident gentry are few; and yet the general prosperity of these parts, and the comfort and happiness of the inferior orders are not prevented or obstructed. The welfare of the lower or working classes of many towns, both in England and Scotland, does not depend directly on the presence of nobility, gentry, or landholders; and we could even adduce instances, especially in Scotland, where towns originally small, have become large and populous, and the inhabitants of which have become, at least, comfortable,—in some instances rich,—yet without that fostering patronage of the land-owners, which has been so generally demanded as necessary to the welfare of Ireland. We trust, however, that we shall not here be misunderstood, or believed to be undervaluing the influence, which respectable landholders and wealthy families exercise, on the general prosperity and welfare of the district, in which they reside. When such eminent persons chuse to reside in the neighbourhood of their humble, but useful, countrymen, we believe that their presence has a most beneficial influence; but our knowledge of the circumstances on which national prosperity depends, prevents us from assenting to the assertion, that they are indispensably necessary to the welfare of their country.

The practical conclusion from these observations, which are certainly rather desultory, or at least the conclusion which we are compelled to draw, is—that the happiness and prosperity of every community depend, humanly speaking, chiefly, if not entirely, on itself, and on its own exertions; and we cannot see why Ireland and her peasantry should be excepted from this general inference. Let them be taught to look to themselves, to know that they have within their own reach, and in the compass of their own exertions, the elements of all human happiness, Let them be habituated to think, that steady and regular exertion, however trifling it seems daily or weekly, will, after many days, and in the course of months, furnish a result exceedingly disproportionate indeed to the individual and separate effects. Let them be taught to think on the most appropriate of the four things, which a great authority has represented as exceedingly small, but wise on the earth,—the homely but peculiarly happy example of that persevering insect, which, though neither strong nor gregarious, is yet, by steady, though trifling exertion, enabled to lay hold with the hands, and occupy a residence in the noblest and most magnificent mansions. To such exertion, indeed, the volume before us shows, that there are many and serious obstacles, chiefly in the unfortunate habits to which the lower Irish are accustomed from their early years; and which are so much more difficult to be interrupted or eradicated, as they have a constant tendency, by indulgence and gratification, to acquire a more irresistible influence, and more unbounded power over their unhappy votaries. They ought to be taught, by all means, the natural and moral advantages of diligence and activity over sloth and indolence, of sobriety and steadiness over drunkenness and intemperance, of cleanliness over filth, and competence and independence over penury and beggary.

A most necessary and indispensable measure in effecting these changes is, to inspire them with hope and confidence that their efforts will be eventually crowned with success. Almost all the correspondents of the Board agree in representing the Munster peasantry as oppressed with a load of despondency, which seems to reconcile them to their suffering and calamitous condition, because they can discover no means of alleviation or escape. This lethargic temper of the soul, the foe to exertion, the bane of existence, the nurse, if not the parent, of many diseases, must be corrected or destroyed. The great principle of *possunt quia posse videntur*, cannot be too often inculcated, or too earnestly impressed, even on a population so morally sunk as the Irish peasantry are stated to be; and we must not forget to remark, that the most effectual method of convincing them of the truth of this maxim, is to show, by example, what can be accomplished by others in similar circumstances. A few instances of this kind would speak most forcibly to the understandings of men, whom their scanty or imperfect education, and numerous hereditary prejudices, prevent from being instructed in any other mode. When they see the wretchedness which is prevented, and the comfort which is procured by the more prudent and steady conduct of others, envy of their success, and a spirit of emulation, will quickly prompt them to imitate or rival the examples, Every thing that can cherish or maintain a spirit of independence,—every thing that can foster the honest pride of the cottager, ought to be encouraged. Pauperism and mendicity, which, as we have seen, are greatly too prevalent amongst the Munster peasantry, ought to be suppressed, and the causes which favour their frequency should be checked or prevented from operating. One cause, the influence of which is agreed by all parties to favour, in a peculiar degree, the practice of mendicity and the state of pauperism among the Irish peasantry, is too remarkable to be omitted;—we allude to the tendency which the lower Irish manifest to contract early marriages, before they are in a condition to provide for the contingencies incident to marriage. There is something ungracious in the notion of disapproving or condemning this practice, which is more or less prevalent in the inferior and working classes of all nations; but it is a point much too firmly established in political economy to be doubted, that the practice of early marriage tends, in an eminent degree, to produce both individual and national poverty and distress, and may be shown to have a very powerful influence, both physical and moral, in retarding or checking the progress of national wealth and prosperity. There is, perhaps, no country in Europe where this practice is so general, and presents such an extreme prematurity, as in Ireland. The tender passion is there kindled at an early period, and glows with a fervor quite incredible to the cool and prudent souls of this more rational country. We are informed by Mr Wakefield, whose authority on every thing connected with Ireland is founded on the most unquestionable evidence, that youths of 16 or 18, and maidens of the same age, or a year or two younger, are quite accomplished in all the arts of serious courtship; and if they have the few shillings that procure a license, rarely allow the first Lent or Advent to pass, without rushing to the priest, and getting the ceremony performed in the most precipitate manner. They never seem to think on the necessary consequences of such heedless and premature engagements. The example of others who have done the same, and the facility with which subsistence is procured, so long as the potato fails not, tend to continue the custom; and it is only when this crop is deficient, that these thoughtless beings open their eyes to all the misery of their situation. Various reasons have been assigned to explain the prevalence of this custom, and, among others, the wish to get rid of parental authority;—we believe it is quite unnecessary to look farther, than the heedless *de die in diem* mode of living so peculiar to the Irish; and, which is encouraged and perpetuated by frequent example, and by never having it in their power to contemplate any thing else. It is impossible to reprobate the practice in terms too decided, although it is difficult to conceive any direct means of checking or discouraging it. It is probable that the only true and rational means will be found in the elevation of their notions and habits in common life to a higher standard; in showing them, that a greater degree of comfort, and a more abundant supply of the means of existence, are at once compatible with their rank, and within the reach of their exertions. If it were possible to introduce, by slow and successive steps, the habit of subsisting on a species of food of a less temporary and perishable character, than they at present employ, some of these inconveniences would be obviated in an effectual manner. The more general use of farinaceous aliments, the quality and abundance of which depend not on a single season, would diminish the frequency, and blunt the severity of those oppressive seasons of scarcity, which invariably follow an indifferent crop of potatoes; and, by raising the national idea of the necessaries of life, would tend, indirectly at least, to discourage those numerous and premature marriages, to which the present mode of subsistence among the Irish peasantry, undoubtedly affords great and peculiar facility. It is unnecessary to tell us, that these changes depend on education. The domestic condition of the English peasantry about 30 years ago, when education was not generally diffused among them, was much superior to that of the same rank in Scotland, where it is well known, that the poorest are never totally uneducated; and even at the present moment, when the general instruction of the inferior ranks in Scotland is much more certainly secured than in the southern part of the island, the condition of the Scottish peasantry is only approximating that of the English, and is in no instance superior to it.

Although, therefore, the changes wished for in the condition of the Irish, are undoubtedly influenced by the state of public education, we do not look on them as necessarily connected with it; and we think that all means ought to be used, to introduce the moderate alteration of habits which we suggest, without waiting for the operation of this important element of civilization. We are compelled, by want of space, and attention to other subjects, to make a sudden pause at this part. We will not conclude, however, without saying, that we entirely approve of the measures suggested by the Board of Health at the close of their Report,—and that we trust, that, so far as circumstances render their recommendations practicable, the public authorities, and even private individuals, whose influence may be effectual, will omit no means, and neglect no opportunity of giving them full and effective force.

## II.

*Illustrations of the Inquiry respecting Tuberculous Diseases.* By JOHN BARON, M. D. Physician to the General Infirmary at Gloucester. London, 1822.

No department of medical science is attracting more attention, or cultivated with greater zeal, than that of pathology; and no inquiry of pathology seems to be pursued with so much interest, as that which illustrates the nature of those organic changes, which give rise to the formation of what are named consumptive diseases. Within the compass of a few years, we have had occasion to notice the researches of M. Bayle, and the original views of Dr Baron, and to be the medium of communication for the valuable observations of our correspondent Dr Abercrombie; not many months have elapsed since we gave a pretty full detail of the accurate researches and interesting discoveries of M. Laennec; and before us at present is another treatise from Dr Baron, intended to illustrate the opinions published in his Enquiry, and to elucidate and confirm his doctrines on the formation of those tubercular disorganizations, whether occurring in the lung, or the intestines, or in other tissues, which too frequently terminate in the irremediable destruction of the part, and the extinction of life.

The former work of Dr Baron showed, that various observations and experiments, chiefly on the lower animals, led him to be dissatisfied with the usual pathological opinions on the origin and nature of tuberculous diseases; and to form on this subject inferences, which, so far as we know, are peculiar to his illustrious and lamented instructor, Dr Jenner and himself. The inferences to which we allude may be referred to two general heads; 1*st*, Those which relate to the origin of tubercles,—to the material cause of their production, or the organic tissue or system which is the chief agent in their formation; 2*d*, Those which relate to the mode in which the tubercles are developed or generated, to the course which they follow, and, in short, every thing connected with their progress as pathological bodies. The former of these subjects, which was discussed at some length in his Enquiry, is almost entirely excluded from the present volume, or mentioned only incidentally; and the principal object of the author in the work before us, is to give a full and deliberate examination of the latter point, a minute account of the progressive changes which tubercles undergo, a statement, historical and critical, of the descriptions and opinions of various authors, ancient and modern, and observations on the measures, which the principles of Dr Baron would lead to consider most effectual in resisting and combating the organic injury which these parasitical bodies occasion.

That the reader may form a more distinct and precise idea of his inferences on this point, and may be enabled to pursue the train of investigation more easily, Dr Baron condenses the whole of them into the following series of independent propositions.

"First, then, I affirm, "That tubercles exist in almost every texture of the body, and that their origin and essential character will probably be found to be the same, wherever they are discovered.

" II. That tubercles, in their commencement, are small vesicular bodies (*i. e.* hydatids) with fluid contents.

" III. That these bodies subsequently undergo transformations, on the nature of which their tuberculous character depends; that these transformations are progressive, but not uniform; and that it is only in the larger bodies of this kind that they can be accurately traced. That they commence with an opaque spot, which advances with different degrees of rapidity, and ultimately converts both the contained and containing parts into substances very different from what they were at first.

" IV. That on the size and relative position and structure of the tubercles, which are thus formed, depend the characters of many of the most formidable disorganizations to which the human body is exposed.

" V. That considering the transmutations which these bodies undergo, the condition in which they may be found will be modified by the time at which they may happen to be examined.

" VI. That it is rarely that we can have an opportunity of seeing the first steps of these morbid phenomena in the human subject, because the tubercles are generally formed, and the elementary character of course lost, before death permits us to make enquiries respecting altered or morbid structure.

" VII. That some tumours are formed by the aggregation of tubercles, and that the characters of such bodies are materially influenced by the relative position and contents of the elementary parts, of which they may happen to have been composed, or, in other words, that " varieties in the arrangement of the elementary parts of morbid growths, will of course cause corresponding varieties in their appearance."

" VIII. That, therefore, diversity of appearance in tubercles or tumours does not imply diversity of origin, for it has been demonstrated that substances and textures of very different properties may be found even within the same cyst, thereby merely denoting different gradations in the changes to which these bodies are liable.

" IX. That the disorganizations above referred to are not the product of any species of inflammation, and that though inflammation may attend their growth, and modify the symptoms which they occasion, yet that it is very different both in its origin and consequences from that species which attacks a part unaltered by previous disease; that, in the first instance, it is to be considered as the consequence, and in the latter as the cause, of altered texture." pp. 4–7.

Of these propositions, some are essential and peculiar to the doctrines of our author; others are only accessory, and common to him with most other pathologists. It is chiefly to the esssential (1, 2, 7 and 9) that it is profitable either for us, or for our readers to give our present attention.

Dr Baron requires no more of his reader than simply to understand well the meaning of these propositions, and to divest his mind of every prejudice or bias. His assent to their truth, or rejection of them as inadmissible, must depend entirely on the evidence by which they are supported.

It is easy to see that this will neither be a light labour, nor a doctrine which is likely to acquire many proselytes in a short time. The evidence which is requisite to prove that tubercles in any of the tissues, and pulmonary tubercles of course, are in every instance originally minute vesicular bodies, is at once, as our author has acknowledged, (prop. IV.) very difficult to obtain, and beset, at the same time, with several sources of mistake; and although this were established, by what means are we to satisfy ourselves that these vesicular bodies are actual hydatids? The body or the animal, whichever you choose, to which medical men have agreed to apply the term *hydatid*, resembles, neither in its appearance nor properties, at any time of its existence, the pathological objects, which have been named *tubercles*. Without, however, dwelling on such objections at the very outset, we must inform our readers, that Dr Baron proceeds to establish the propositions already quoted, by evidence derived from the following sources; 1*st*, By the history of the formation and progress of tubercles in the human subject; 2*d*, By the history of the formation and progress of tuberculous growths in the inferior animals; 3*d*, By a reference to the observation and opinion of Hippocrates among the ancients, and Fernel, Sennert, &c. among the moderns; 4*th*, By showing that the pathological descriptions given by modern observers are founded on erroneous or biassed observation, and, if carefully examined and purified from the sources of error, would tend to establish the pathological principles, which he has delivered on the nature and origin of tuberculous diseases.

It is certainly undeniable, as our author has remarked, that pathological writers have manifested great discrepancy of language in their descriptions of the varieties and stages of pulmonary tubercle; and we had occasion to notice, not long ago, in what manner the miliary tubercle of M. Bayle is to be understood. These discrepancies, our author thinks, his description will tend to reconcile.

"When tubercles are first formed in the lungs, they are not cognizable by the touch, by reason of the delicacy and elasticity of their structure; but they are visible on careful inspection. They are very small vesicular transparent bodies, and shine amid the unchanged texture of the surrounding lung. Should any of them happen to have been generated on the surface of the membranes, they there may be seen clustering together, and resemble, both in size and general character, the beautiful globular incrustations, which beset the stalks and leaves of the ice-plant. In the human subject it is *very rarely* that we can have an opportunity of detecting them in this, their primary state; and consequently most of the descriptions which have been given, commence at a period somewhat later in their progress. At that time the softness and delicacy of the vesicle are lost, its transparency is diminished, and its size is increased. On examining the lung, where they may exist, by the touch, a distinct granular sensation is communicated to the fingers. The progress from this period is evinced by an augmented size, a firmer texture, and a complete loss of transparency, a yellow opaque body being perceptible. In this state they sometimes fall into ulceration, and prove fatal. But before such an event takes place, it occasionally happens that many of them advance further, and exhibit other appearances. Except where they are in contact with each other, they go on increasing in bulk. The coats of some become thick and hard and almost cartilaginous, while their contents may vary both in colour and consistence. Others proceed in a different way, and are condensed into solid bodies of an uniform texture, the cysts and the containing parts being scarcely discernible from each other.

"The appearance then of the lungs of those who die in this state is as follows: some tubercles, when cut through, will be found to be firm and solid, others with thick dense coats containing curdy, cheesy, or purulent-looking substances; others will be found to have been in part destroyed by the progress of the ulceration, and to show the firm and almost cartilaginous remnant of the emptied cyst, conspicuous amid the surrounding disease. Should a great number of contiguous tubercles have fallen into this state, deep and extensive and irregular shaped fissures and excavations are thereby formed.

"In the progress of the tuberculous disease, there are corresponding changes in the surrounding lung, which it is necessary now to note. At the first development of tubercles, whether in the lungs or elsewhere, the surrounding texture seems to undergo little or no alteration. The lung retains its fresh pink colour, and its light elastic feel, and there appears to have been no interruption either to the circulation of the blood or air.

"As the tubercles increase in size and in density, and approximate each other, they cause greater disturbance in the system. The blood is impeded in its circulation, and respiration is of course rendered quick and laborious on slight exertions. The consequences are obvious; the lung becomes firmer and of a darker colour, and ultimately exhibits that appearance, which has been supposed to be indicative of a particular species of disease. * Whether this be an idiopathic affection or not, it is not at present material to inquire; as, in such examples as we have described, it is manifestly occasioned by the growth of foreign bodies in the lungs; and the darkness of its colour and its induration increase in proportion to the obstruction which is offered to its functions.

"The dark and indurated lung, which occasionally surrounds the tubercles, may, under the circumstances which I am about to describe, be obliterated. This takes place when the tubercles increase in size and coalesce, a dense solid structure being thus formed, with here and there partial traces of the original tuberculous character, to the total exclusion of every thing like the pulmonic texture." pp. 10–13.

Though the symptoms indicating, or believed to indicate these pathological changes must be generally and well known, yet a regard to candour and correctness obliges us to give Dr B.'s semeiography.

"Tubercles, in their incipient state, may exist without producing much disturbance in the system, and they may pass onwards towards consolidation, if they be not very numerous, without affording almost any signs of their existence; and in this consolidated state they may continue, and not in any material degree tend to abridge life. The unexpected occurrence of solid tubercles or tumours in the lungs of those, who had not previously manifested any symptoms of such disease, bears me out in this assertion. When tubercles are fully consolidated, there is the strongest reason to believe that they do not subsequently fall into a state of suppuration. This occurs chiefly in those that were not destined to arrive at this point.

"The consolidation therefore just referred to, may in some measure be considered as a favourable termination to tubercle, as life has been found to be compatible with their existence, except in cases where they occupied a large proportion of the lung, or produced accretion of the membranes. It is in that period of their progress, which is intermediate between the state last mentioned and their first development, that all the symptoms characteristic of tuberculous phthisis occur. This will be apparent by attending briefly to the ordinary progress of the disease.

"In a person who has tubercles, a frequent cough without any ex-

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* Hepatization.

pectoration, but with occasional oppression about the chest, and hurried respiration on slight exertion, may exist at intervals for many months, or even a longer period, without any other sign of disease. What is commonly called a fresh cold, may increase these symptoms and render them more permanent; and then the patient, who never expectorated before, may perhaps be surprised by spitting up a yellowish or whitish globular-shaped mass, tinged with blood, or a gush of blood may precede an occurrence of this kind. I have known the last-mentioned symptom repeatedly happen to a most alarming extent, in a case where there was great destruction of the pulmonary tissue by the consolidation of tubercles, but where, though the case proved fatal, there was never any expectoration of the matter from tubercles. It is from this and other kindred cases, that I infer that tubercles once consolidated do not subsequently suppurate or ulcerate.

"Such an expectoration, as I have above described, is a very sure token of tuberculous disease. One of them has given forth its contents, and it plainly tells us that there may be more in a condition likely to do the same thing. In proportion to the number of these bodies, and the rapidity with which their texture is broken down, is the progress of the disease." pp. 14–16.

On the pathognomonic character of purulent expectoration, we are presented with an observation, of the truth of which we have been long convinced, and which shows how useless this much laboured diagnostic has now become in consequence of our more accurate pathological knowledge.

"The appearance and the quantity of the matter expectorated differ much at different periods in the same case; that which is discharged from a tubercle, strictly so called, varying from that which may be excreted from the disease of the mucous surfaces, which has been excited by the tuberculous affection. The appearance of pus, by no means, as is generally supposed, necessarily indicates the presence of tubercles, for the contents of these bodies are very often far from being purulent. It is manifest, therefore, that this test, which has been looked for to determine the existence of tuberculous disease, may be fallacious. The reader must remember, that I am here speaking of the matter which is contained in the tubercle itself, in contra-distinction to that which is yielded by the surfaces of tubercles that have ulcerated and discharged their contents, as well as of that which is afforded by the diseased condition of the surrounding parts." pp. 17, 18.

We are indeed quite satisfied, that daily observation presents us with numerous consumptive cases, which terminate fatally without a particle of purulent matter being expectorated; and equally certain, that when purulent or puriform matter is expectorated, it does not prove that the tubercles are softening, or that the case will certainly prove fatal.

This account of the progress of the pulmonary tubercle is followed by two cases in confirmation of the truth of the notion, that tubercles are originally minute vesicles or hydatids. The first is certainly the most conclusive, as the transparent vesicles were found both on the pleura, and in the pulmonic cellular tissue, and as various parts of the lung presented them in different states of maturation, according to the conceptions of Dr Baron. With the second case, we confess ourselves somewhat perplexed, as we cannot perceive, that it tends in any way to establish the object of the author; but assuredly proves one assertion, in which we quite agree with him, that very considerable disorganization of the lung may have taken place without being distinctly manifested by any unequivocal external signs. Dr Baron concludes, in general, from such cases, that very great changes have taken place previous to death; and that the appearances which dissection discloses are very seldom those which existed at the commencement of the disease. He avails himself of this imperfection of our art to render doubtful all the descriptions which have been hitherto given of tubercles; and charges the pathologists of the present day with believing, that all disorganizations exist from the beginning in the state in which they are found at death. Most pathological writers have distinguished tubercles according to the organ in which they occur; and have described one variety of tubercle as existing in the lung and another in the liver or mesentery. Dr Baron disapproves of this distinction as inconsistent with the uniformity of the general laws which regulate the origin and formation of tubercles, and not confirmed by what is found in nature. The first reason we look upon as a complete *petitio principii*, and therefore not deserving any attention. In support of the second, Dr Baron adduces two cases; the first of which certainly shows, that the liver may contain tubercles or tubercular bodies in various states of softening or maturation, and with various effects on the surrounding texture of the organ; but we doubt whether hydatids or the hydatical character could have been recognised by the eyes of any other observer except Dr Baron. The second is much more conclusive; and furnishes an example of tuberculous disease of the peritonaeum, mesocolon, spleen, lungs, and pleura. The mesocolon presented many semitransparent tubercles, little advanced beyond the vesicular or hydatidical character. Some, on the other hand, were completely transformed into solid bodies; while others had contents of a curdy or cheesy consistence, easily squeezed from the cyst. The surface of the spleen presented a great number of minute hydatids,—some yellow, and as large as millet seeds; the greater number small, and, when seen through a glass, of a bright sparkling appearance. A few tubercles, about the size of millet seed, were found in the right lobes of the lungs, and on the middle lobe of the left side, where it extends over the pericardium, was a solid oblong tubercle, about the size of a grain of wheat. Other portions of the same membrane presented similar tubercles, some of which had attained the size of hazel nuts.

The second chapter of our author's work, which treats of the tuberculous diseases of the inferior animals, and the evidence which they furnish in support of his opinions, is very interesting. The information which it contains is chiefly extracted from the work of M. Dupuy, the veterinary surgeon and professor at Alfort, and relates to diseases in the horse, ox, and sheep. And it appears very clearly, that, although M. Dupuy had not been struck with the hydatid origin of tubercles, or any other connexion between these bodies, yet he had very often observed in the same animal cysts containing hydatids and cysts containing tubercles.

Thus, "in a cow, six years of age, killed on the 2d of February 1819, the pulmonary tissue was very much altered. It contained many cysts, enclosing hydatids of different magnitudes, from the size of a pea up to that of a goose's egg. Other cysts, of which the coats were of the consistence of cartilage, and even osseous, were filled with a substance analogous to that of bone; those which enclosed the hydatids were smooth, and had the appearance of a mucous membrane. We thus found in these lungs hydatids and tuberculous matter, which would seem to prove, that these bodies, though very different in their physical qualities and their organization, have many affinities in common in regard to the causes which determine their formation, and the manner in which these bodies alter the pulmonary tissue." pp. 46, 47.

And in a cow affected with tubercular phthisis, tuberculous matter *(matière platreuse)* of a yellow colour was deposited in the pulmonary tissue in "rounded tumours of different sizes, with unequal surfaces, irregular and rough. Some were uniform, others were of the size of an apple, from which doubtless arises the name of *pommelière*, which the vulgar give to this malady. These tumours were throughout covered by the pleura, which was not sensibly altered. The lymphatic glands, situated at the division of the bronchia, contained also in their tissue tuberculous matter; their primitive organization had disappeared, and these ganglions had undergone a tuberculous disorganization. Another object, which merits the attention of observers, is the presence of a great number of hydatids of different sizes in the parenchyma of the lungs. *These hydatids, regarded and described by zoologists as organized and living* *bodies, might throw some light on the origin and formation of tubercles, or at least prove, that these bodies, which disorganize the lungs in the same manner, develope themselves under similar circumstances. This connexion may become of much value in the etiology of those diseases, which deeply change the organization, and which are so common and so fatal.*" pp. 48, 49.

In the conclusion of the chapter which relates to Farcy, the author's opinions on the agency of the lymphatic system in producing tubercles, are more distinctly brought into view; and he deems this disease to proceed from a morbid state of the lymph of the lymphatics of the limb.

The third chapter is of a very miscellaneous nature. Its chief object is to collect evidence in favour of our author's views from the ancient physicians; but several other purposes are also served by this consultation of the ancients. In the *first* place, Auenbrugger and Corvisart are deprived of the merit of discovering the diagnostic use of thoracic percussion; and even the glory of Laennec in contriving auscultation and inventing the stethoscope, is somewhat obscured. In the *second* place, Dr Baron shows very satisfactorily, as far as the subject admits, that Hippocrates had very clear notions on various diseases of the chest, and was aware of the distinction between tuberculous affections, and peripneumony or other inflammatory disorders of the lung. Our author further shows, that Hippocrates looked on tubercles as a kind of hydatids, and that he formed this conclusion from observations which he had made on the diseased lung of the ox, the dog, and the hog. From the physician of the Archipelago, Dr Baron is constrained to take an immense step down to Fernel and Sennert, who seem to have had the same opinion. The passage which he quotes to prove that our countryman Morton thought so, makes mention of a glandular tumour only, and cannot be deemed evidence of any consequence to the question. After him, this connexion between tubercles and hydatids is noticed only in one or two passages of Morgagni, who appears to Dr Baron to have indulged so much in speculation on the examples which had fallen under his knowledge, that he had overlooked entirely the manner in which hydatids become tubercles, and, consequently, did not anticipate the light, which our author was destined to throw on the pathology of consumption.

The fourth and fifth chapters are very long, and very critical. They contain a minute examination of the labours of Bayle, Laennec, Broussais, and Abercrombie; and enter very fully into the researches of these authors on consumptive diseases, and the descriptions which they have given of tuberculated or otherwise disorganized lungs. It is difficult to conceive or to communicate a very just idea of the merit and nature of this disquisition. To us it appears to have led the ingenious author into the commission of two errors, equally injurious to his cause, and from which every scientific inquiry, and, above all, every medical investigation, ought to be completely free. We allude, in the *first* place, to the extraordinary degree of confidence which the author reposes in the truth and correctness of his own pathological principles; and, *secondly*, to the spirit of contempt and the tone of asperity in which, in complete consistence with this, he animadverts on those of all other writers. Our readers must have already discovered the peculiar fondness which our author manifests for drawing comprehensive and general conclusions, from premises which, if not very partial, have not been hitherto shown to be very uniform in their nature or application;—the singular eagerness with which he grasps on a few scattered facts, floating like the drowning mariners of Orontes,* in the mighty sea of medical observation, and, after moulding them by the force of his own reasoning, to the fashion of his theory, holds up the delineation to the attention of the profession, as a true representation of the uniform and invariable course of natural phenomena. This erring logic, however, is a very trivial sin compared with the manner in which Dr Baron has canvassed the researches and opinions of his fellow-labourers in the work of pathology, and contrasted them with the merit of those, which he himself professes and defends. Every conclusion which is at variance with his own, is unfounded, unfairly deduced, or in some manner rendered worthy of censure; but whenever the facts adduced by others, are too strong to be positively set aside, or correspond in any distant manner with the pathology of our author, they are ingeniously applied to illustrate and confirm the truth of his doctrines.

It is quite certain, that whoever has embraced a particular mode of thinking or observing, or whoever has caught what he deems an explaining glance of any ambiguous and complicated subject, will see every object in the particular light, in which the habits of his mind have led him to look, and will, in the true spirit of generalization, bend every fact and every opinion to his own peculiar views. Whatever suits not this exact measure which he has framed, must be incorrect, or has been misrepresented;—whatever suits it, but is misplaced, must be adjusted or explained;—and the few points of resemblance, which the keen and practised eye seldom fails to perceive, are eagerly seized, and dexterously applied, to speak a language of which their authors thought not, and express views, which were seen by none but the generalizing observer. We do not say this in express terms of Dr Baron; but we wish it were possible to rescue completely his observations on the works of the pathologists we have mentioned, from this character. It is not our intention to enter into an examination of the merit of these remarks, for we do not choose to criticise a criticism; much less is it our purpose to write any defence of the pathological principles of these authors, who are quite competent to defend themselves, and to confirm the correctness of their observations against the arguments adduced by our author. If further observation shall show their descriptions to be inaccurate, we are certain that the love of truth will cause them to acknowledge the mistake, and that their candour will at once prompt them to express their gratitude to Dr Baron, for the opportunity which he has given them of acquiring information and correcting error. If, however, the theory of Dr Baron shall prove to be, as we think it may, a partial doctrine, which applies only in some cases, we cannot perceive the propriety of the very decided language in which he has animadverted, especially on the statements of M. Laennec and those of Dr Abercrombie. A very brief attention to this part of our author's observations, will enable our readers to judge for themselves.

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* Apparent rari nantes in gurgite vasto.

The great point on which Dr Baron is at variance with M. Laennec, relates to the manner in which tubercles proceed to undergo their successive changes. M. Laennec, it will be remembered, agrees with all the pathologists whom we know, in representing the firm state of the pulmonary tubercle as preceding its softened or semifluid condition, and in viewing the deposites of semifluid matter, commonly named *vomicæ*, as the result of the softening of one or more tuberculous masses. The views which Dr Baron has formed of the progress of these bodies, lead to a conclusion quite opposite; and he contends most strenuously, that the tubercle originally contains transparent fluid, which afterwards undergoes various changes in consistence, and finally terminates in complete consolidation. A necessary consequence of this view, to which Dr Baron consistently enough adheres, is to represent the *vomica* as the intermediate condition between the nascent or incipient tubercle, or the semifluid vesicle, and the firm and condensed body to which all anatomists have hitherto agreed to apply the term "tubercle." Now, it is easy to see, that the whole of this difference resolves itself into a matter-of-fact question,—an *observatio crucis,* as it might be named,—to determine whether the softened state actually precedes the firm solid condition, or, whether this firm condition is not eventually succeeded by another and a second softening process. Examinations of tuberculous lungs have shown tubercles small and large, transparent, half-transparent, and opaque, soft and firm, semifluid and solid; but the difficulty is, to determine which of the two states precedes the other. Pathologists and morbid anatomists have generally hitherto deemed it most rational, or, at least, most consistent with the course of phenomena remarked in pathological processes, to consider the firm and consistent state as the original and early one of the tubercle, and to deem the softened or fluid condition an ulterior and subsequent one, which was ascribed universally, till the time of M. Laennec, to an inflammatory and suppurative process, to which it was conceived these bodies tended. The view which M. Laennec and some other cotemporary observers gave of this subject, differed merely in the abstraction of the inflammatory action, for the softening (*ramollissement*) is indeed only a particular mode of the formation of matter. We will acknowledge, that this description appeared to us, as to most others, certainly not made from fancy, but copied from what is seen in the lungs of phthisical subjects. It is indeed true, that the appearances observed in such cases are seldom so complete, as to exhibit an entire and connected series of the successive changes, which may take place in parasitical tumours, from the first moment of their origin to the time when they have been consumed by their self-destroying action. All that the pathologist can see and can reason from, are generally the appearances which are left after the organ has been so much destroyed as to be unfit for the functions of life, or those changes which the accidental occurrence of another disease may present;—and this only in cases of which little is known or marked, unless absence of symptoms of pulmonary disease. The conclusions, therefore, which M. Laennec has drawn, in common with other pathologists, from these appearances, are merely what might be expected in the circumstances; and we doubt whether more could be said of those which Dr Baron has formed, although we should admit them to be perfectly legitimate.

Against Dr Abercrombie our author states objections not unlike these, and opposes particularly the mode of considering the induration of pulmonary tissue, either from tubercular growth, or from other causes, as the cause of consumption, or rather the state previous to the destructive process, on which the consumptive symptoms depend. Dr Baron considers this induration as the effect, and not the cause, of the pathological changes which occur in the tuberculous lung. He never seems to think, that neither his own opinion, nor the one which he combats, is universally true; and that it is possible, that, in one set of consumptive cases, the pulmonary disorganization may be preceded by induration, and, in another, it may be followed, or at least accompanied throughout its course, by this circumstance. Another reason for which our author disapproves of Dr Abercrombie's pathology, is, that he represents inflammation, chiefly chronic, as the cause of organic changes, while Dr Baron looks on this process as the invariable effect of these bodies. Various circumstances prevent us from entering into the merits of this question. We cannot answer for the manner in which our author understands the descriptions or reasonings of Dr Abercrombie, and we are unwilling to attempt any defence of principles, of which we ourselves may have only an imperfect understanding. But it is quite certain, that inflammation, or an inflammatory action, acute or chronic, does accompany, from the beginning, some of the most serious disorganizing processes incident to the animal tissues; and it is equally certain, that it is very difficult for the most accurate observer, or the most acute pathologist, to determine whether this process is a *cause*, or only a *part*, of the action in which the organic change consists. We believe that the most intelligent pathologists of the present day, and we know that Dr Abercrombie is one of this order, look on the progress of the pulmonary tubercle as a process quite different from inflammation, though it is much influenced by this action in the contiguous tissues; and further think, that this and other analogous processes are very often attended with chronic or occasional acute inflammation in the organic substance immediately connected with it. Such inflammatory action is certainly, in general, to be looked on as the effect of the previous disorganization, and of the morbid process which is at the moment going on; and Dr Baron appears to us to be combating a phantom of his own creation, when he hopes to convince pathologists that this is the case. We must not forget to observe, that much of this discussion is gratuitous, in so much as it does not relate directly to the point under examination, and as Dr Baron has chosen the pathological observations of Dr Abercrombie on diseases of the brain and its membranes, as the object of his animadversions on this subject.

Such, very nearly, is the kind of evidence, and the mode of reasoning by which Dr Baron has attempted to prove the truth of his opinions on the progress and pathological changes of the pulmonary tubercle. A desire to give a candid and just view of these, has led us to be more full in our extracts, and more minute in our analysis, than we could have otherwise justified ourselves in being, and has prevented us, as much as may be, from delivering any opinion on the merits of Dr Baron's cause, in the course of our account of his reasonings. It will appear that he has spoken with sufficient severity of the errors, which he conceives other pathologists have committed; and that he has expressed himself with sufficient confidence that they are in the wrong; and we are willing to think, that, in many points, he is correct. We wish we could say that he has been equally successful in establishing his own doctrines, and that he had adduced undeniable and conclusive evidence that tubercles are, as he represents them, hydatids;—that their soft and fluid state invariably precedes the indurated;—and that a pulmonary vomica (we will avoid the term abscess) is truly and actually a hydatid, proceeding onward from the fluid and soft to the solid and consistent state. We fear, however, that this point will not appear so certainly established to his readers, as it evidently is to Dr Baron; and we think that, unless he can adduce more direct and unquestionable arguments,—evidence, in fact, which, without appealing to the livers of rabbits, or the varying and opposite appearances sometimes presented in the lungs of the glandered horse, will show that tubercles begin in the human lung in the form of minute vesicles, proselytes will neither be soon nor numerously gained to his system. It is likewise evident, that the arguments which Dr Baron employs to prove the progressive changes stated by him to occur in the tubercle, from a transparent or semitransparent to an opaque fluid, and thence to a state of consistence and firmness, or even induration, are by no means sufficiently conclusive or direct to establish the point. We have a singular aversion to the quotation of authority, unless it be of the first order, and unless it is impossible to make out our case without such a resource. We have, above all, an aversion to the quotation of the authority of Lord Bacon in all instances, not because we think his authority insufficient or improper, or not of the most excellent kind;—but because we generally observe, that it is the frequent resort of a weak or defenceless cause, and that many authors seem to believe that the bare mention of Lord Bacon's name is sufficient to strengthen the most impotent conclusions, and to prove the most untenable positions. Wherever the name of Lord Bacon is much repeated, or the word 'induction' often introduced, we have generally been able to recognise a singular weakness in the chain of reasoning, and an obvious want of connexion in the links of which it consists. We had much rather see a good piece of inductive reasoning, as it is named, or, as we would call it, a good specimen of analytic investigation, without an allusion the most remote to the great Verulam, or any sign that the author was aware of the existence of such an eminent person, than a vague and declamatory disquisition, with strong inferences from a few instances, numerous analogical arguments, and more numerous quotations from the *Novum Organum.* It is quite as easy to examine a subject well, and to sift the conflicting or discordant parts, so as to elicit the true statement of their relation, and to exhibit a connected train of argument founded on facts which are properly arranged, as to take so much pains to prove that the author has read or consulted the works of Lord Bacon, or knows that he suggested a method of reasoning, which academicians have termed induction. We will not say that the whole of this character applies to the work of our author, for we must do him the justice to say, that he is evidently well acquainted with the principles of the Baconian philosophy; but we must confess, that the previous observations have been irresistibly and involuntarily suggested to us by the perusal of his work. We will not, however, embarrass him either with the inductive method, or quotations from the *Novum Organum,* but merely state a few simple observations on the evidence, which we conceive requisite to establish his doctrine, and on the slender points in his argumentation.

1. We begin with observing, that our author's position, that tubercles commence in the form of minute vesicles, is by far the most probable part of his doctrine. It is very difficult, indeed, to prove it directly, or to give the sort of evidence which the rational physician will require that this is the case. For, in the *first* place, it is rare that we meet with opportunities of examining pulmonary tubercles in that early and nascent condition which can alone furnish the information we require. We, indeed, occasionally meet, in the lungs of persons who have died from accident, or have been cut off by more acute maladies, considerable variety of tubercular disorganization, which the symptoms would have scarcely led us to suspect; and we certainly find, in such lungs, all those varieties which have been believed by anatomical observers to depend on the different stages of progress, in which these bodies were. But, *secondly,* how can we seize on the exact case, or the precise period in that case, at which we shall find the vesicular appearances described by Dr Baron, asserted by him to be the embryo tubercle? Are we quite certain that these bodies would actually become the opaque, dense, grey tubercle, which produces such mischief in the pulmonic tissue? So far, however, as the doctrine is susceptible of

direct proof, it may be deemed likely enough, insomuch as it accords in general with the observations of MM. Bayle and Laennec. The latter pathologist has shown, that the miliary tubercle of M. Bayle is the nascent or embryo state of the common pulmonary tubercle; and we are not unwilling to admit, that the varying descriptions of grey, transparent, millet-seed tubercles, which have been given by these pathologists, are most easily reconciled upon the statement given by Dr Baron. This part, therefore, of our author's doctrine ought to be attentively investigated, and the means of confirming or refuting it, diligently sought, as by far the most probable, and, perhaps, the most important of his researches.

2. Although, however, we admit the vesicular character of the minute or nascent tubercle, we are instantly met by another difficulty, which is by no means so easily removed. What are the proofs that this vesicle is a hydatid? Does it resemble this production in its appearance and properties, or in the ulterior changes which it is destined to undergo? Has any one seen hydatids of so small a size as the nascent tubercle is said to be; or, if this be admitted, were the circumstances and arrangement of such hydatids similar to the pulmonary vesicles? We know that hydatids are found in the peritoneum, on the tunic, and in the substance of the liver, and similar situations; but, in most of the cases which we have known, read or seen, these bodies had attained a much larger size, and when these were minute ones, they were generally, nay, almost always, enclosed within the larger. Let us not, however, be misunderstood; we do not here say that such hydatids may not be found also in the pleura, and in the pulmonic substance; but we must doubt whether the miliary vesicles, or the nascent tubercles, are actually to be referred to this order of bodies.

3. "The matter thickens;"—we are embarrassed with more serious difficulties. Suppose we admit that the nascent or transparent tubercle is actually a hydatid, does it retain the same properties, and observe the same progress, as that body does in other parts of the system? Does it attain the same size which hydatids of the peritoneum are known to present, and do the contents continue pellucid, or at least non-purulent, as these are observed to do? Both of these circumstances are contradicted in the statement given by Dr Baron, and must therefore be received as arguments against the correctness of his opinions. The pulmonary tubercle has scarcely been generated when it begins to become opaque in the centre, and continues, as it enlarges, to lose its transparency, until it is converted into a substance quite opaque, and entirely different from the peri-

toneal hydatid. Its contents have scarcely been effused in their fluid and transparent form, when they become thick and consistent, and finally end in solidity. While, therefore, we admit that the original form of the pulmonary tubercle, is a minute, transparent, or semitransparent body, with contents probably fluid, and which may be called a vesicle, we do not think that it follows, or that Dr Baron has succeeded in proving that this body is a hydatid; much less do we think, that this hypothesis of the vesicle being a hydatid, will explain the ulterior progress, which the pulmonary tubercle undergoes.

4. Does the fluid of the ordinary hydatid, occurring in its usual situation, ever undergo the change which Dr Baron has informed us takes place in the fluid of the minute or incipient pulmonary tubercle? Are there any well authenticated cases of hydatids occurring in the peritoneum, the fluid of which, originally pellucid, began to lose this property, as Dr B. describes the fluid of the pulmonary tubercle, and continued to increase in opacity and density, until it was converted either into an encysted abscess, or a caseous tumour enclosed in a capsule? We must avow our ignorance of such cases, and acknowledge that we should feel a degree of scepticism concerning their occurrence. Any hydatids which we have seen or known, contained a limpid watery fluid, or at least a fluid not in any degree similar either to purulent, much less to tuberculous matter; and we never remember to have known any thing like a hydatid, containing dense caseous matter. The mere circumstance, indeed, implies a contradiction in terms; for no pathologist would think of applying the term *hydatid* to such a tumour. We are aware that instances have occurred of the expulsion of hydatids from various purulent or sero-purulent tumours; but we have always been taught to believe, that the formation of the purulent fluid in this case, was either accidental, or the effect of the irritation created by the hydatids, and not the result of any process going on in the interior of these bodies.

Lastly. Our author's idea of the formation of pulmonary *vomica*, is, though quite consistent with his pathological principles, the most extraordinary of all his conclusions. We have tried every expedient to render it familiar to our minds, and have hitherto been unsuccessful in all. We do not however deny, that the notion is ingenious; and we have even gone so far as to think that it may occur in some few cases; but, still, all our early principles,—all that we have learnt, that we have seen, that we could suppose,—is completely at variance with this inverted procedure in the formation of the pulmonary vomica, We have seen examples of this disease, in which we were led to believe that it had been the direct result of inflammation;—the conversion, in short, of a portion of lung into purulent matter; examples in which we could have thought it the result of secretion from a peculiar cyst; examples, in short, in which we could have thought it the conversion of one or more solid tumours into purulent matter. But, that it was the effect of a minute vesicle, gradually increasing in size, and, as it increased, converting its transparent contents into an opaque fluid, is an idea which it never occurred to us to entertain. It is needless to say that M. Laennec's dissections and observations caused the first of these ideas to give place to the third, which is now rendered untenable by the last,—adduced by Dr Baron. We acknowledge, that we have at present no means of refuting the opinion of our author; but it is equally certain, that we cannot discover any proofs or evidence of its truth. It must, indeed, be classed among those ambiguous doctrines which may be true or false; and which, being situate in a doubtful point on the confines between truth and error, may be claimed indiscriminately by the partisans of either side.

These observations, which we trust we have placed in as clear and intelligible order as possible, will probably enable our readers to estimate the strength of the evidence, and the conclusiveness of the reasons, with which Dr Baron has supported his views of the pathology of the pulmonary tubercle. We have divested them, as much as could be, of all scholastic sophisms, and all technical arrangement or expressions; and we are in hopes that they will be easily understood by every one who makes his own judgment, and the ordinary principles and facts of medicine, his principal means of investigating the merit of any new doctrine. In expressing ourselves thus, we disclaim entirely the principle of opposing a doctrine because it is new and at variance with what we have been taught or early imbibed; and all who know us will admit, that there is nothing which we so much dislike, and of which we so completely disapprove, as this mode of fixing bounds to all knowledge, or opposing barriers to all investigation. Trained as we have been, not merely to the knowledge of what are esteemed the correct pathological principles of the day, but also to the observation of disease in the living body, and the examination of its causes or effects in the dead, we confess that we have been accustomed to consider the principles which Dr Baron assails, as the most consistent with what nature presents, and founded on phenomena, though not more uniform, yet more general in character than any other on which a system could be reared. While, therefore, we do not profess to be so attached to any system as not to relinquish it on evidence of a general and conclusive nature, we cannot quietly see the whole established order of phenomena in any pathological process inverted or overturned, without requiring sufficient reason for such an innovation. Let Dr Baron collect and adduce cases which demonstrate unequivocally the series of pathological changes, for which he has so strenuously contended;—cases in which the vesicle, with transparent and fluid contents, may be satisfactorily shown to be converted into globular bodies, containing opaque, semifluid, or even solid contents; and cases in which one or more of these bodies, examined at the very period when their contents are still fluid but opaque, truly constitute the puriform deposites named *vomicæ*;—and let these cases be so numerous that they shall not, by the candid inquirer, be deemed exceptions to, or deviations from, the ordinary course and character of events in the progress of tuberculous disorganization. Let Dr Baron perform this inquiry in such a manner as not to interfere directly with the opinions or observations of cotemporary pathologists; and we cannot doubt that the merit of his principles will gradually ensure their general adoption,—truth will prevail over error,—and a mere hypothesis, suited only to a few isolated facts, be converted into a legitimate theory, established on a solid and permanent foundation.

We ought to conclude here; but justice to Dr Baron prevents us from closing the volume, without adverting to the treatment which he recommends for tuberculous diseases. It affords us great pleasure to remark, that, whatever be our author's pathological principles, they do not exercise on his practice any influence of which the most judicious physician would not approve. He is led, of course, to dwell much on the means of promoting absorption; and, to accomplish this desirable object, he recommends exactly the same course, which has been long taught and practised in the treatment of consumption. The only novelty which we can recognise, is an extreme confidence in the powers of iodine, and its alkaline preparation, the hydroiodate of potass. The efficacy of this medicine in controlling various organic changes, and the hopeless nature of tuberculous diseases in general, are sufficient to encourage the trial of this remedy. We have had occasion, with regret, to add it to the list of unavailing means. We trust Dr Baron's exertions will be rewarded with more gratifying results.

## III.

*Medicamina Officinalia, seu Pharmacopœiæ Londinensis Index Methodicus.* Cura F. A. Macann, M. D. Londini, Burgess & Hill. 1822.

A mere index to a pharmacopœia may be supposed to possess scarcely sufficient importance to require any critical notice in this place; and certainly, if the Index were of an ordinary character, or of nameless mediocrity in merit and utility, we should have allowed it to slumber in peace on the shelves of the bookseller, or to have pursned its quiet and unostentatious path to the pharmaceutist's laboratory, and the clinical student's cabinet. From this it will be concluded, that we look on Dr Macann's little performance as entitled to a greater degree of notice than usually falls to the lot of works of this description. It is indeed, in every respect, a valuable acquisition to every professional man to whom pharmaceutical information is necessary, and will form a most useful appendix, not only to the work to which it was appropriated by its author, but also, in a great degree, to every British pharmacopœia. Its plan and purpose are easily understood. Every pharmaceutical student, and every prescriber, must have experienced the great utility of the short lists of preparations at the end of the history of individual articles in the Edinburgh Dispensatory. By a single glance at this list, the reader discovers into what, and how many, preparations the article he has been studying enters, either as an ingredient, a chemical agent, a vehicle, or a medical remedy; and he forms a tolerably just conception of its importance as a medicinal substance, and of its utility in the treatment of diseases. We are not acquainted with any work which, so far as we remember, communicates, in such a direct manner, this kind of information; and the ordinary pharmacopœias, in which the simples are arranged alphabetically or chemically, and the preparations according to the divisions of pharmaceutical operations, undoubtedly labour under a considerable inconvenience, so far, at least, as the student is concerned, in not being provided with such lists. To supply this defect is the object of the work now noticed; and we are happy to say, that it is evidently well calculated to accomplish this purpose. Dr Macann very naturally divides all officinal medicines into the two classes of simples and preparations, according as they are administered in a direct and uncombined state, or are combined and prepared as the prescription of the physician directs, by the art of the pharmacopolist. "Of some simples," says Dr M., "many preparations exist, of others none at all; but no preparation can exist without an antecedent simple. In arranging the simples, therefore, we arrange the whole; for every preparation will naturally find a place under that simple from which it is derived." In compliance with this principle, therefore, the Methodic Index is disposed in the following manner; 1*st*, To exhibit all the officinal simples in one continued alphabetic series; 2*d*, To enumerate, under each simple, the various articles and pharmaceutical preparations, which are in any manner derived or formed from it. In this manner the simples, or the individual articles of the *Materia Medica*, form the leading heads, under each of which the preparations of the Pharmacopœia are arranged as subordinate articles. Our readers will quickly discover the value and utility of a methodical index thus constructed; and so fully are we persuaded of this, that we think, that it might be with great propriety extended and rendered more complete by the addition of other pieces of pharmaceutical knowledge. If it were possible, for example, to annex to the title of each preparation the intention with which it was employed,—a chemical solvent, a medicinal agent, a diluent, or a mere mechanical vehicle;—much, certainly, would be added to its utility as a pharmacological guide. The execution of the work is highly creditable to the accuracy and precision of the author. The index is followed by a series of annotations on many articles of the materia medica, in which much critical acuteness is displayed on many points connected with the arrangement, and the chemical and pharmacological qualities of the substances.

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## IV.

*An Essay on the Medicinal Efficacy and Employment of the Bath Waters, illustrated by Remarks on the Physiology and Pathology of the Animal Frame, with reference to the Treatment of Gout, Rheumatism, Palsy, and Eruptive Diseases.* By Edward Barlow, M.D., Graduate of the University of Edinburgh; Member of the Royal College of Surgeons of Ireland; one of the Physicians of the Bath Hospital, and of the Bath City Infirmary and Dispensary; and Physician of the Charitable Society for the Relief of Lying-in Women. Bath, 1822.

This sensible and useful performance must not be confounded with the numerous ephemeral publications, which owe their existence to fashionable watering places, and advertisements for medical practice. It does not, like these, contain distorted and exaggerated delineations of disease, and tedious enumerations of all the maladies incident to luxury, wealth, and rank, with earnest and passionate exhortations to resort to the fountains of health, which are represented as equally efficacious in the most varied and opposite distempers. The object and character of the work before us are totally different, and may be explained in few words. It will be found that it is not a treatise which is adapted indiscriminately to invalids of every class, or which contains recommendations of the same remedy to every disease. The main purpose of Dr Barlow, on the contrary, is to distinguish and specify all the particular diseases or forms of disease, in which the Bath waters may be expected to exercise their beneficial effects, and, by guarding against an indiscriminate or empirical application of a useful remedy, to show where it is truly efficacious, and where its virtues correspond to its celebrity. The diseases, indeed, in which Dr Barlow recommends the use of these waters are but few,—gout, rheumatism, palsy, and some chronic eruptions; and even in the treatment of these, the use of the waters is restricted to certain forms and periods, in which only he has found them beneficial. Another circumstance, which may be accounted a very proper recommendation of the work before us, and of the remedial agent which forms its main subject, is, that Dr Barlow has not confined himself to the bare and simple enumeration of the examples of disorder, in which the Bath waters may be used with benefit, but has in a more rational, though not less practical manner, investigated the principles, pathological and therapeutic, which ought to regulate the treatment and measures of the attentive physician, and has given, what we are disposed to consider as very just and natural views of several circumstances which are concerned in the formation of the diseases, which fall under his consideration.

The correctness of our author's therapeutical principles will be estimated from the following observations.

"Mineral waters, like all other medicinal articles, derive their efficacy from the powers which they possess of calling into action the inherent energies of the animal frame. In ordinary language, a remedy is frequently said to cure a disease; and for general purposes the expression may perhaps be sufficiently correct. But there is reason to apprehend, that the prevalence of such language, by leaving out of sight the living processes by which the cure is effected, leads oftentimes to injurious misconceptions, and to false views, if not a total disregard of the agency by which the end is really accomplished. It is true, that in our best endeavours to trace out and develope those processes by which the animal frame is enabled to rectify its several derangements, we see but in part; and that, notwithstanding the lights which the laborious and successful investigation of animal physiology has shed on this subject, we are greatly defective in our knowledge both of the intimate nature of diseases, and of the operation of remedies. Still science and industry have done much to elucidate the various processes by which animal life is supported, and the mode in which remedies act in the removal of disease; and it will not be questioned, that the perfection of medical science must consist in the completeness with which we connect the operation of remedies with those animal processes which are the more immediate agents in curing disease."

" If these observations be correct, it follows that our use of Mineral Waters must be salutary in proportion to the accuracy with which we employ them in producing and regulating those peculiar excitements of the animal frame by which it is enabled to rectify its own derangements. The modification of such excitements, both in kind and degree, is a most important part of medical practice, on which much of its success depends, and a knowledge of which can only be eminently acquired by long experience and close observation. So faint are the shades, so minute the differences, which oftentimes influence the individual practitioner in the choice and adaptation of his remedies, that much of his most valuable experience is actually incommunicable." pp. 5–7.

These remarks form a very good introduction to the exposition of those pathological principles to which our author adverts. These are very shortly as follow. The human body is liable, from various causes, to a state of plethora or repletion, which is chiefly of three kinds, according as it takes place from redundance of the nutritious function, without affecting the self-adjusting powers of the system, or rather perhaps without diminution of the excretory function;—from the same cause uncontrolled by any adjusting powers, or with some affection of the excretory function;—and, lastly, not so much from redundance of the nutritious function, as an impaired or diminished action of the excretory function. The first of these conditions is what constitutes the peculiar state of system which disposes to inflammatory diseases.

" It is customary to refer these, when they occur, almost exclusively to the exciting cause that may have immediately produced them. But the fallacy of this reasoning must appear, when we reflect, that of any given number of individuals exposed to an ordinary exciting cause, scarcely two will be affected alike.—The truth is, that the exciting cause produces its effect because the body exposed to it is prone to be morbidly affected in consequence of its own previous derangement; and the specific form of the disease arises partly from the operation of the exciting cause, but chiefly from the predisposition of the parts affected to undergo those morbid actions to which the general indisposition of the system renders them exposed." pp. 20, 21.

The second modification of plethora, or that which takes place in a constitution deficient in natural vigour, or impaired by predisposition to disease, is somewhat different.

"In order to form a clear conception of the phenomena which characterize this state of plethora, it is necessary to give particular attention to the successive changes, which the pulse undergoes. I have already remarked, when treating of the first condition of plethora, that previously to the occurrence of febrile or inflammatory action in the heart and arteries, the pulse is low, oppressed, irregular; and that, with respect to the order of succession in which these several states of arterial action occur, the first stage is that of feebleness, the second of irregularity, and the third of permanently increased action.

"As the incipient lowness of pulse is that symptom which so generally misleads, suggesting the employment of tonic and stimulant remedies, it is highly necessary to distinguish it from a pulse of pure debility; and this, I apprehend, may be done, by conducting the examination with suitable accuracy; for, as I stated in my former Essay, 'if firm pressure be made on the artery, it will be found to resist this; and, on gradually withdrawing the pressure, to rebound against the finger with a force much more considerable than a casual examination would lead one to expect.' With respect to the irregularity of the pulse, I also noticed, that this could be observed as occurring both in its force and frequency; and that the irregularity of force,or that in which the artery makes a few strong pulsations as if by a sudden effort, and again relapses into a state of diminished and oppressed action, indicates a nearer approach to the period of actual fever or inflammation than the irregularity of frequency only. Indeed, it seems to be the connecting link between the stages of feebleness and of permanently increased action, and to consist essentially in the desultory and imperfect efforts of the vascular system to form this latter stage." pp. 25-27.

In the third kind of plethora, which arises chiefly from an impaired action of the excreting function, "the deviation from health takes place still more gradually than in the preceding."

"It is characterized by great sallowness of aspect, and duskiness of skin; the pulse is low and compressible: the surface is in general harsh, dry, and deficient in natural transpiration; the tongue, for the most part, moist and clean; the appetite capricious, often craving and voracious; the alvine evacuations perseveringly foul, and exhibiting no traces of healthy secretion; the urine high coloured, and often extremely fetid; even the perspiration has frequently an offensive odour, and gives a dusky tinge to the linen which absorbs it." pp. 28, 29.

On the truth or correctness of these observations, and the principles on which they depend, we believe it is unnecessary to make any commentary. They must have occurred to most practical physicians, who are accustomed to observe carefully the phenomena of the diseases incident to the persons of the various inhabitants of large towns. They are undoubtedly, in a great degree, founded on nature; and the sole merit of our author consists in applying them in the natural and ingenious manner in which he has done.

The treatment of these unhealthy states of the human body next occupies our author's attention; and he gives evidence of very just and true therapeutical principles. The first condition he manages chiefly by a preventive or anticipating plan of measures; and he may here be esteemed the fairest of practitioners, as he only applies to the diseases of others what he found, by close and unwearied observation of his own case, to be most effective and beneficial.

" The treatment required for this stage is simple in the extreme, and consists solely in moderate blood-letting (12 or 16 ounces, sometimes 20 or 30), occasional purging, and a reduced diet. By these means alone, pursued without any sensible impression on the general strength, interruption of ordinary occupations, or even confinement, may this stage be effectually relieved, and the dangers to which it leads successfully averted." pp. 33, 34.

The occasional occurrence of inflammatory diseases in this state of plethora, leads our author to more minute consideration of the remedial measures, and of the circumstances by which their employment is to be regulated; and we have the following very judicious observations on the diversity of opinion among practitioners on this subject.

" From local peculiarities, some practitioners are so circumstanced as never to encounter diseases of this violence. They accordingly find that copious depletion may be dispensed with; that if employed it sinks the powers of life, or lessens the chance of recovery; and they therefore sometimes hastily conclude, that the active practice employed by others is rash and unnecessary. Diseases of this languid description may be expected to occur in large and crowded cities, where the habits of life are sedentary and luxurious, and where inflammatory complaints are rarely connected with what I have distinguished as the first condition of plethora, but chiefly with the second and third. Perhaps London may be taken as the best exemplification of this remark; and it is well known that there the corresponding diseases will not bear that activity of treatment, which provincial practitioners find indispensable.

"Both parties in consequence continually misconceive each other; the London practitioners charging their country brethren with unnecessary vigour, while the latter as frequently consider London practice feeble and inert. The effects of this discrepancy of opinion are at times sufficiently perplexing; for the London practice being deemed of highest authority, is assumed as the standard of right, and thus frequently impedes the provincial practitioner in the free exercise of his judgment. I trust that the present work will go some way towards reconciling all differences of this kind, by discriminating more accurately than has hitherto been done, the several conditions of the body under which local inflammations occur, and the modifications of treatment which they respectively require." pp. 44, 45.

The treatment of the second condition of plethora will be understood from the following passages:

"Under the second condition of plethora, I conceive that the congestions, and other derangements of minute structure and functions, are not to be removed without some effort of the constitution; and that febrile excitement is a valuable auxiliary in effecting recovery.—Under extreme feebleness of pulse, and muscular debility, it may be prudent to commence by gentle excitement, watching carefully the time when increased action in the pulse manifests that renewed energy which will both justify and bear direct depletion." p. 50.

"When, by the judicious combination of small blood-lettings and moderate excitement, the system is aroused to a state of general inflammatory action, the treatment of this state must be conducted on principles with which all medical practitioners are familiar. In judging of its approach, I am influenced more by the state of the tongue than that of the pulse. When the constitution is assuming a disposition to febrile excitement, ere it is announced by the pulse still feeble and compressible, the tongue presents a peculiar whiteness, strongly characteristic and expressive, being distinct from any obvious morbid secretion, and seemingly belonging to the substance of the tongue itself. It seems in proof of this whiteness not arising from morbid secretion, that I have repeatedly seen it disappear immediately after a full blood-letting. I know not any stronger or surer evidence of inflammatory action than this appearance of the tongue; and I consider, that whenever it is present, blood-letting may be had recourse to with little hesitation.

"As in this state of plethora, excitement is required in aid of early depletion, to accelerate febrile action, so, in a large proportion of such cases, will a continuance of moderate excitement be necessary, to support the constitution under the efforts which it is called on to make, as well as when these efforts are on the decline. For this purpose, I know of no remedy so suitable or beneficial as the Bath Waters. It is in the various modifications of this constitutional derangement that these waters are so eminently beneficial; and if, when low inflammatory action is present, their use be combined with suitable evacuations, the best assistance which art can afford will thus be administered." pp. 52–54.

The further observations on other curative means, and especially on the employment of purgative medicine in correcting morbid states of the alimentary canal, are very judicious; but we must be satisfied with a general reference to them; and we hasten to the continuation of our author's subject,—the application of the general therapeutic principles thus exposed, to the treatment of the acute or regular form of Gout. This form of disease is closely and invariably connected with one or other of the two first conditions of plethora; and the object of our author is to show, that it is most successfully, and with least harm to the constitution, treated on the principles unfolded in their management. Our author does not enter on any history of this well-known malady, which would have been quite unnecessary;—but he employs the pathology of the disease to combat the absurd notion of leaving it to nature, to show that specifics are quite irrational, to inculcate the necessity of a prompt and active employment of the antiphlogistic treatment both general and local, and to prove that no circumstances, either of constitution, or diathesis, or local affection, in this form of the disease, should deter the practitioner from moderating the violence of the paroxysm by every means in his power. He contends indeed, that this is the best method of preventing or obviating those bad consequences, the prospect of which, physicians have too frequently allowed, to confound their counsels and weaken their hands.

"Were incipient gout always treated on these principles, and the premonitory signs which mark its return, detected in sufficient time to employ the depletion necessary for averting the approaching paroxysm, we should have few victims of reiterated gout, and this disease would soon cease to be the *opprobrium medicorum* which it has been so long considered.

"This last remark may seem rather at variance with the previous observation, which assigns so much importance to the curative efficacy of the gouty paroxysm. But there is in reality no contradiction; for though I conceive it injudicious wholly to suspend the natural effort when it has taken place, or to interfere with it otherwise than through the medium of the constitution, I see no objection, theoretical or practical, to rendering such effort unnecessary, by adequately relieving that state of constitution which gives rise to it." pp. 77, 78.

The means on which our author relies are blood-letting, and evacuation in general, especially by the meadow-saffron (colchicum autumnale); and he concludes his instructions by stating, that the use of the waters is not suited to, and almost never required by, this form of the gouty paroxysm.

There are, however, other circumstances under which gout may attack the human body. If it has recurred once or twice in the same individual, the ravages which it commits are soon manifested in the altered state of health which succeeds; and modifications of the disease take place, which require some change in the therapeutic measures. A similar effect is produced, when the gouty paroxysm occurs for the first time in the person of an individual in that plethoric state, which depends on diminished excretion. In each of these examples of morbid action, our author varies considerably the principles of his treatment, and delivers some very good rules for removing the bad health indicated by the mere state of excrementitious plethora, as he names it, and afterwards applies these rules more directly to gout and other specific diseases. On the former head he observes—

" The increased secretions from the bowels, seem to be the natural discharge by which nature aims at getting rid of such impurities. To promote them, therefore, by suitable purgatives, at the same time supporting strength with a lightly nutritive diet, is the first indication. When relief to a certain extent is thus afforded, the powers of the constitution rally, and a febrile effort is made to assist in expediting the work of purification. As this advances, depletion should be more active, and the diet less stimulating. When sufficient excitement exists to warrant the employment of blood-letting, we may then consider the curative process in the most favourable train. Perhaps the powers of the constitution are hardly adequate to rectify any high degree of this peculiar derangement, without the extraordinary efforts which a state of febrile excitement supplies; and hence we see experienced practitioners often hail the appearance of febrile symptoms, in chronic complaints, as announcing a more remediable form of disease. During the early languor of this condition, various tonics and stimulants are found highly beneficial; and it is to the various degrees of this state, especially when it becomes combined with more or less of nutritive plethora, that the peculiar treatment so successfully employed, and ably advocated by Mr Abernethy, is applicable. From the explanations here given, there can be no difficulty, either in understanding the nature of the symptoms which he describes, or the modus operandi of his remedies. Perhaps there is no auxiliary remedy more salutary, or better suited to afford valuable relief under these circumstances, than the Bath Waters. By their external use they purify the skin, and thus tend to restore one most important excretory to a state of greater efficiency; while, by their tonic and stimulant properties, so grateful to the stomach, and invigorating to the whole frame, they support it under those curative efforts which medical skill ought to foster and promote." pp. 91–93.

These remarks are followed by some judicious observations on the effects of hot vapour and baths in restoring the impaired functions of the skin. We extract the concluding observations.

"The combination of stimulant remedies with depletion, is a part of medical practice that seems never to have been properly discussed, though frequently noticed incidentally by practical writers, and often conspicuous in the popular and empirical treatment of diseases. It s assuredly one of the utmost importance, and will, I trust, receive some illustration from the present work. I am the more anxious to bring this matter under consideration, because a misapprehension respecting it seems of late years to have had considerable influence in causing the Bath Waters to be withheld from patients manifesting any slight febrile symptoms, who might nevertheless have used them with the utmost advantage. This error appears to have arisen from trusting too much to speculative reasoning, without sufficiently regarding the evidence in favour of the salutary administration of these Waters, which experience had so copiously supplied. Considerable light having been thrown on several diseases of excitement, formerly misconceived as cases of pure debility, in which course of inquiry the late lamented Dr Parry, of this city, stands pre-eminently distinguished, it has been somewhat hastily inferred, that in all such cases, stimulants of every kind were improper; and the Bath Waters being of acknowledged stimulant properties, it was concluded that in such complaints they could be no longer admissible. I trust that, in the foregoing pages, I have afforded good grounds for questioning the correctness of this reasoning, and for believing that both the febrile nature of such diseases, and the stimulant qualities of these Waters, may be admitted, without justifying the conclusion drawn from them." pp. 96–98.

The next disease to the treatment of which Dr Barlow applies these principles, is Rheumatism. The acute form of this malady, which he manages also by depletion, he excepts entirely from the use of the Bath waters.

"As in the higher degrees of gout, so in acute rheumatism, there is little room for the employment of the Bath Waters. Such active inflammation stands not in need of that exciting power which renders these Waters so salutary in the various congestive forms of disease; and if the malady be promptly subdued, as little are their restorative properties required. When local inflammation, however, leaves the joints stiff and enfeebled, these Waters are eminently serviceable in recruiting their strength, and restoring their pliancy." p. 123.

In the management of the chronic form of this complaint, he very properly recommends the practitioner to advert to the accompanying constitution, and to keep before him a distinct view of the two great objects of diminishing and obviating plethora, and removing local congestion.

"According to the extent of plethora, and the degree of inflammatory action, must blood-letting be regulated; and as there is always, under this form of the disease, more or less of vascular congestion present, so is it very generally requisite to excite and support the sanative efforts of the system by mercury and the Bath Waters, which may be employed not only with perfect propriety, but with signal benefit, even when direct blood-letting is required to reduce plethora, and keep the increased actions of the system within due bounds. To the combination of depletion and stimulant treatment I have already directed attention; and in no disease is it more necessary to bear in mind their compatibility. So perfectly consistent have I found them, that in the numerous cases of rheumatism under my care in the Bath Hospital, I constantly prescribe blood-letting, without deeming it at all necessary to suspend the use of the Waters: and by the combined employment of these remedies, aided by purgatives, colchicum, antimonials, and mercury, the most essential benefit is, in a number of instances, obtained." pp. 124, 125.

More particular information on our author's method of treating this obstinate complaint, is contained in the following sketch.

"When patients are admitted under chronic rheumatism, if no prominent distress present itself, nor any high degree of inflammation prevail, the bowels are opened, and the bath is prescribed. Should whiteness of tongue and a quick pulse exist, a solution of Epsom salt and tartar emetic is given as an ordinary saline. This gentle aperient abates fever, lowers the pulse, cleanses the tongue, and enables the patient to bear the stimulant effects of the Waters. Under this treatment, essential relief is often obtained. Should local suffering, however, not be abated by these means,—if the pulse rise, the skin become hot, and the tongue whiter and more furred, some blood is taken, a dose of calomel and a purging draught are prescribed, followed by a saline mixture with colchicum. The quantity of blood taken is influenced by the patient's strength and the degree of inflammatory action, and is generally from four to twelve ounces. Should the constitutional disease still resist, mercury is resorted to, and either a blue pill is given every night, a Plummer's pill night and morning; or, if more active measures be required, the patient is confined to bed, and small doses of calomel and antimony are administered at intervals, until the gums become tender. The mercurial effect is kept up for a short time, after which free purging is employed, the bathing renewed, and either bark conjoined with nitre, or decoction of bark with colchicum, completes the cure." pp. 128–130.

For the local effects and derangements, he recommends the ordinary means of friction and counter irritation, either by the tartar-emetic ointment or by champooing.

We are doubtful of the propriety of recommending the waters either of Bath, or of any other place, for paralytic affections resulting from a morbid change of the brain or nerves. There are, indeed, local forms of this affection, which seem to depend, not on a change or injury of any part of the nervous system, but rather on a direct morbid state of the muscles themselves. Of this nature seem to be the impaired or lost motion succeeding to some forms of severe and protracted rheumatism, and that gradual loss of power with which the muscles of the inferior extremities are affected, in various deranged states of the alimentary function. These forms of paralytic disorder, and perhaps the palsy, after saturnine poisoning, might, we believe, be relieved, if not cured, by the judicious use of the Bath waters; but we cannot conceive them admissible in any other forms of this complaint, and especially those which depend on injury done to the brain or nerves. We are rather inclined to think, that no remedy which does not remove the nervous disorganization can be of use; and we think baths are at least of ambiguous effect, and perhaps in many instances injurious. We should at least fear, that sending a paralytic patient to Bath, would perhaps convert his palsy into apoplexy. This, however, is the only part of Dr Barlow's therapeutical measures, of the propriety of which we have any doubt.

The last family of diseases, in the treatment of which Dr Barlow recommends the waters, consists of those chronic eruptions which depend either on a bad state of the alimentary function and general health, or on the impaired or deranged function of the skin. After some observations on Dropsy, not because it can be treated by the waters, but because it illustrates some of the pathological principles of our author, the volume is concluded by some general remarks.

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## V.

*System of Anatomical Plates with Descriptive Letter-press.* By JOHN LIZARS, F. R. S. E., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy and Physiology, Edinburgh. Part I. The Bones. Edinburgh published by W. H. Lizars, 3, St James Square. 1822.

THIS fasciculus, which contains eight plates, is the first specimen of a series of engravings intended to illustrate the anatomy of the human body. The objects represented are the bones; and, from the manner in which the engravings are executed, it may justly be expected to be the best work of the kind hitherto published in Britain. The chief purpose of anatomical plates is to communicate a correct idea of the natural figure, size, and relation of the objects; and in order to accomplish this successfully, it is requisite not merely to copy them with anatomical accuracy, but also to have the faculty of referring correctly to the same plane surface, a number of inequalities,—elevations and hollows, which none but a professed artist can successfully do. This latter faculty, which is technically named perspective, depends therefore on principles with which few anatomists can be quite familiar; and as, on the other hand, few artists are gifted with the power of correctly observing anatomical proportions, it is rare that we meet with engravings which are perfectly faultless. In the specimen of anatomical delineation before us, the accuracy of outline with which the objects are represented, is extreme; and it is scarcely possible to look at one of the plates without at once recognising this excellence. Satisfactory instances of this will be found in the various representations of the cranium, plate 4th, and of the individual cranial bones, (pl. 5.)—objects, which it is always very difficult to copy with fidelity. The articulated tarsal and metatarsal bones in the 8th plate are likewise very happily delineated; and we scarcely remember to have seen any where a truer representation of the figure and peculiarities of the thigh-bone than that which the same engraving exhibits. Particular enumeration, indeed, is almost impossible; for the merit of the whole is very uniform.

Considered as specimens of art, these engravings are entitled to great praise. The different shades are, on the whole, well observed; and the only instance, in which we could recognise a defect in this particular, is in the third plate, where the perspective has not been so successfully attained as in the others. The large hollow named the iliac fossa, or the belly *(venter)* of the ilium, is engraved almost like a plane surface, especially on the right side of the pelvis.

To the student this work is particularly recommended by the convenience of its form and its moderate price. While these plates do not cost more than others of diminutive size and confused representation, they are sufficiently large to express the parts distinctly, and at the same time are not too unwieldy and expensive for common use as those of Caldani. Hitherto the selection of objects has been critically correct, and we trust the same attention will be paid in the subsequent fasciculi, so that every thing essential may be comprised in the smallest possible number of engravings.

# PART III.

## MEDICAL INTELLIGENCE.

At the suggestions of several friends and correspondents, we have resolved to extend this department of our Journal.

In our next, and each succeeding Number, therefore, an entire sheet of sixteen pages will be appropriated to Medical Intelligence, consisting, in a great measure, *of facts and observations selected from the periodical publications of the preceding quarter.*

In forming this selection, it is not, however, our intention to borrow very freely from our professional brethren, but rather to apply ourselves to those periodical works which are not expressly devoted to Medicine, but which, nevertheless, frequently contain matter highly interesting to medical men.

Valuable observations, however, and discoveries connected with the healing art, will not be neglected, wheresoever found; and such original matter will be occasionally introduced as circumstances may render necessary, or our peculiar situation may enable us to furnish.

We have only to add, that this change in the form will not, for the present, be accompanied by any change in the size, or in the price of the Journal.

*Report of the Diseases of Birmingham, from October 3d,* 1822, *to January 3d,* 1823. *By John Darwall, M.D. one of the Physicians to the Birmingham Dispensary.*

ACUTE DISEASES.

| | No. | | No. |
|---|---|---|---|
| Cephalalgia | 8 | Colica | 1 |
| Hydrocephalus | 2 | Enteritis | 1 |
| Phrenitis | 1 | Hæmatemesis | 2 |
| Dentitio | 3 | Obstipatio | 28 |
| Cynanche Parotidea | 4 | Hepatitis | 1 |
| Cynanche Tonsillaris | 2 | Hemorrhagia | 8 |
| Angina Maligna | 2 | Abortus | 4 |
| Laryngitis | 1 | Synochus | 17 |
| Catarrhus | 6 | Typhus | 58 |
| Pneumonia | 4 | Rheumatismus | 12 |
| Pleuritis | 1 | Febris Infantum | 12 |
| Hæmoptysis | 2 | Erysipelas | 5 |
| Asthma and Asthmatic Complaints | 85 | Variola | 5 |
| | | Scarlatina | 10 |
| Carditis | 1 | Urticaria | 4 |

### CHRONIC DISEASES.

| | No. | | No. |
|---|---|---|---|
| Epilepsia | 7 | Tænia | 7 |
| Paralysis | 3 | Lumbrici | 1 |
| Hemiplegia | 7 | Ascarides | 2 |
| Paraplegia | 1 | Hæmorrhoides | 1 |
| Chorea | 1 | Splenitis C. | 4 |
| Mania | 3 | Hepatitis C. | 4 |
| Hypochondriasis | 7 | Icterus | 4 |
| Amaurosis | 1 | Physconia | 1 |
| Tinea Capitis | 2 | Tympanites | 1 |
| Porrigo Larvalis | 2 | Ascites | 3 |
| Ophthalmia | 6 | Anasarca | 1 |
| Ptyalismus | 1 | Hydrops | 5 |
| Dysphagia | 1 | Diuresis | 1 |
| Bronchocele | 1 | Dysuria | 2 |
| Pertussis | 4 | Leucorrhœa | 2 |
| Tussis | 8 | Gonorrhœa | 3 |
| Phthisis Pulmonalis | 32 | Amenorrhœa | 5 |
| Bronchitis C. | 3 | Syphilis | 10 |
| Hydrothorax | 2 | Struma | 4 |
| Palpitatio | 2 | Rheumatismus C. | 21 |
| Pleurodyne | 2 | Strophulus | 1 |
| Marasmus | 16 | Lichen | 1 |
| Pyrosis | 1 | Lepra Vulgaris | 1 |
| Gastrodynia | 4 | Impetigo | 2 |
| Dyspepsia | 29 | Varices | 1 |
| Asthenia | 9 | | |
| Diarrhœa | 11 | Total | 547 |
| Dysenteria | 2 | | |

The former part of this quarter was very variable; the wind, for the most part, S. W., with much rain. Frosts set in early in December, and have continued to the present time (January) with little intermission.

The character of the diseases in the above Table has been very rarely inflammatory, and forms a very strong contrast to that of the disorders of the last summer and autumn. It has scarcely once been found necessary to use the lancet, and even local bleeding has seldom been called for.

The fever that appeared in the latter end of September, considerably increased through October and November. It was nearly confined to the lower parts of the town, where the situation of the houses is damp, and exposed to continual exhalations from the river. It did not appear infectious, at least it was not perceived to spread from house to house, though two or three in a family were frequently attacked by it. The symptoms were headach, vertigo, tinnitus aurium, and intolerance of light. Sometimes the eye was extremely bright and fiery. The heat of the skin was not greatly raised, but imparted a peculiar and most unpleasant tingling to the touch. There was early debility, with a weak, and not frequent pulse. The tongue was furred, the thirst very great. Occasionally, very obstinate diarrhœa accompanied it, and in one or two instances produced a fatal result. Generally speaking, however, these symptoms were not severe; they continued for two or three weeks, and then the patient gradually recovered. It was seldom that any particular crisis could be observed.

Children about 14 or 15 years of age were the most frequent subjects of attack; but adults did not entirely escape. In December this disease scarcely disappeared, and asthma has taken its place.

The number of cases comprehended under the title of Asthma and Asthmatic Diseases, are so much more numerous, than are generally to be met with in tables, that it seems advisable to give some account of the symptoms which characterized these disorders. Till the frost began, few cases were observed; but within the first week afterwards, the numbers greatly increased, so as to form at least two-thirds of the patients admitted. In most of these patients, there was violent cough, with considerable difficulty of breathing, much aggravated at intervals. The expectoration often very copious, then suddenly decreasing, with exacerbation of the dyspnœa. This was again succeeded by abundant expectoration, with a corresponding relief of the breath. Sometimes for a night or two the patients would be able to lie down with tolerable ease, and then again threatened with instant suffocation, upon assuming the reclining posture. There was neither fixed pain nor fever. The digestion was considerably impaired, with a costive state of the bowels and scanty urine; and there was almost continual drowsiness, with an inability of obtaining sound sleep. These symptoms have greatly varied with the weather, and we have been almost enabled to foretell the condition of our patients, by merely observing the state of the atmosphere.

A few only of these instances bore the marks of convulsive asthma; for in only one or two was there a perfect remission of the symptoms.

The treatment has necessarily been various. Great relief has occasionally been afforded by expectorants, particularly ammoniacum, and by alteratives; and where œdema was present, blisters to the ancles. Emetics have afforded temporary ease, but nauseating doses of the tartrate of antimony were more permanently beneficial. Most of these cases will probably continue till the weather becomes milder, with little improvement.

The few instances of erysipelas terminated well; but one case appeared to have been much aggravated by bleeding. The patient, an old and very weak woman, was bled by a practitioner of the town, without my knowledge; and immediately after venesection, sunk into a comatose state; from this she was relieved by gentle purgatives, which removed a great quantity of black and very offensive fæces. This disease, indeed, seems especially to arise from disorder of the digestive organs; and far as Mr Abernethy and some of his pupils have carried this doctrine (often unfortunately to the exclusion of the very plainest indications to a more active method), we too often meet with proofs of its general correctness, to neglet it in practice.

This quarter also has afforded several instances of tæniæ, putting on the semblance of several diseases. Not only has dyspepsia, which we might expect to have been removed by their expulsion, but both asthma and rheumatism have disappeared upon the ejection of these parasitic animals. Oil of turpentine, with the precautions enjoined in the last Report, has been very successful, so far as expelling the worms and removing present symptoms; but the alimentary canal usually remains in so weak a state, as speedily to permit their reproduction, unless farther means be employed. To expel the worms, seems indeed but a part of our task, if that state of the intestines be not corrected, in which they are generated. My usual plan has been, to give the oil of turpentine at intervals, not only till no more worms appear in the dejections, but till all that slimy and apparently albuminous matter is brought away, which seems to be their nidus. When this has been done effectually, alteratives and tonics are very useful, and the patients, in general, quickly recover a vigorous state of health.

Where worms infest the rectum, is generally advisable to administer clysters. For this purpose I would particularly recommend Machel's injecting apparatus. It is very far superior to any other machine that I have seen, and no comparison can for an instant be made between this, and the pipe and bladder. No practitioner, who wishes to derive all the advantages from injections they are capable of affording, ought to be without it.

Smallpox, I am sorry to say, has rather increased, though every effort has been made, to extend the benefits of vaccination. One reason of this may be, that parents are averse to bringing their children to the public institutions in winter, where they can be vaccinated, whence more subjects liable to attack from variola are afforded. Upon the whole, however, the prejudices against vaccination seem to be diminished.

## *On the presence of Oil in Human Blood.*

*Extract of a Letter from Thomas Stewart Traill, M. D., Liverpool, to Dr Duncan, Junior.*

A PATIENT of my friend Dr M'Cartney has afforded me another opportunity of detecting oil in the serum of human blood. The patient is a stout young man, who was labouring under acute hepatitis. The blood separated spontaneously; but the white colour of the serum induced Dr M'Cartney to send the fluid to me for examination. Its colour and consistence strikingly resemble that described in your

XVIIth Volume. Its sp. gr. = 1.0187, which nearly agrees with that of the second instance, and is somewhat less than in the first.

100 grains of this serum evaporated slowly to dryness, afforded 21.1 gr. of residue. Of this, 4.5 gr. consisted of oil, exactly resembling that obtained in my previous experiments. The albumen, after being well soaked in distilled water, and repeatedly washed and dried = 15.7 grs. The evaporation of the washings afforded 0.9 gr. of saline matter, of which 0.7 were muriates, and 0.2 probably lactates. Hence we may state the contents of this remarkable serum to be—

Water - - - - - =78.9
Albumen - - - =15.7
Oil - - - - - - = 4.5
Salts - - - - - - = 0.9
100.0

The peculiarities of this serum consist in its containing oil, which exists in the form of an emulsion, and in the large proportion of 4½ per cent.; in its having about double the quantity of albumen that is assigned, by the best chemists, to the serum of blood; and in its diminished proportion of saline ingredients.

It is worthy of remark, that these peculiarities appear to be connected with inflammatory disease; and, in two of the cases, were decidedly accompanied by acute hepatitis. Since my last letter to you, I have had an opportunity of examining the serum of the blood of one of the individuals above alluded to, when he was in health; but it presented nothing peculiar.

I may also add, that the serum, resembling *thin water-gruel* in colour and consistence (which, if I recollect aright, was first described to me by you), has fallen under my observation. I was unable to detect any oil in it: and its peculiarities seemed to be owing to an excess of albumen.

Whether these facts will assist in throwing light on the functions of the liver, it may be premature to determine.

*Liverpool, Jan.* 10, 1823.

## DEATH OF DR JENNER.

This event took place on Saturday, January the 26th, 1823, in the 74th year of the age of this celebrated physician.

In consequence of this, a numerous meeting of Medical Gentlemen was held at the King's Head, Gloucester, on the 22d February, 1823, for the purpose of considering the best means of testifying their respect for the memory of Dr Jenner; and, Dr Baron being called to the chair, a series of resolutions were passed, the general result of which was, that a monument should be erected by subscription, to the memory of the discoverer of vaccination, in or near the city of Gloucester.

It is unnecessary, at present, to say any thing of the character of an individual, whose name must be familiar wherever vaccination is practised.

## *Liverpool Ophthalmic Infirmary, for curing Diseases of the Eye, established A. D.* 1820, *under the Professional Arrangement of*

Physician, Thomas S. Trail. M. D. Surgeons, Mr Thomas Christison, Mr James Dawson, Mr Thomas F. Hay.

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There is now in the Press, a Pandect of the Writings and Practice of a Century of Surgeons, for the Prevention of Venereal Diseases and Cure of Gonorrhœa, by Means which all may obtain, and all may administer. "*Cito et Certe.*" Also, Some Remarks on Strictures of the Urethra. By a Physician.

## *Observations on Aphonia. By* JOHN ASTBURY, M.D. *Barlaston.*

I have seen four cases of this complaint in the course of last year, (1818); three in females, of some months continuance, and one in a man, which had continued four months. I am acquainted with a widow, 50 years of age, who has been troubled with this complaint at times for several years. Sometimes she loses her voice for six months together, and it will then return suddenly, without taking any remedy. This complaint seems to arise from want of proper secretion in the parts which form the voice, as the patients generally complain of dryness and roughness in those parts, particularly towards evening. I have seen very good effects in this complaint from a *linctus*, consisting of two scruples of the nitrate of potass, combined with one ounce of the *rob*, or extract of the elder berries. I directed a tea-spoonful of this mixture to be dissolved slowly in the mouth and throat three or four times a day. As the complaint was not complicated with any other disease, but consisted in loss of voice only, these cases may not perhaps be improperly called cases of Aphonia Simplex.

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## ERRATA.

P. 159, *line* 9, — Dr Yelloly, — Dr Yeats. } in No. 74.
159, — 39, — purulent, — feculent. }
195, — 32, *for* infected, *read* injected.
198, — 13, — nitrate, — citrate.
218, — 28, — common inhalers of the inverted funnel,
*read*
common inhalers and of the inverted funnel.

Edinburgh:—Printed by J. Hutchison,
for the Heirs of D. Willison.

THE
EDINBURGH
MEDICAL AND SURGICAL JOURNAL,
No. LXXVI.

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Communications have been received from Drs Dickson, Duffin, and Robson—and Messrs W. Bayer, A. Blake, J. Braid, T. M. Greenhow, J. Lightbody, J. Stevenson, J. Swan, and R. Wyse.

The following publications have been received.

Medical Jurisprudence. By J. Paris, M.D. &c. and J. S. M. Fonblanque, Esq. Barrister at Law. 3 vols. 8vo. London, 1823.

Thoughts on the present Character and Constitution of the Medical Profession. By T. C. Speer, M.D. 8vo. Cambridge, 1823.

An Outline of Hints for the Political Organization and Moral Training of the Human Race, submitted, with deference, to the consideration of those who frame laws for the civil government of man; and more especially for those who direct, or profess to direct, man to the true worship of the Deity. 8vo. Stockton, 1823.

The Medico-Chirurgical Review. June, 1823.

Observations on the State of the Peasantry of the West of Ireland, during the Epidemic Fever, &c. By De Burgh Birch, M.D. Dublin, 1823.

On the Means of improving the Medical Police of the City of New York. By David Hosack, M.D. New York, 1820.

Memoir of Hugh Williamson, M.D. By Dr Hosack. New York, 1821

Observations on Ergot. By Dr Hosack. New York, 1822.

State of New York Hospital for the year 1821.

Introductio in Commentationem de Asphyxia sive morte apparente. Auctor Salom. Jac. Levy. Kiliæ, 1821.

Diss. Inaug. de Pneumonia gastrico-nervosa. Auctor Theophilus Christianus Carparus Esmarch. Kiliæ, 1821.

De Hydrope Acuto Ventriculorum Cerebri. Auctor J. H. Jonas. Kiliæ, 1822.

Diss. Inaug. Sistens Analysin Chemicam Radicis Filicis Maris. Auctor Donatheus Benjamin de Gebhard. Kiliæ, 1821.

De Jejunio Salutari. Auctor Jacobus Fridericus Henricus Kaestner. Kiliæ, 1822.

Insignium Somnambulismi Spontanei exemplorum enarratio, adjecta phænomenorum, in iis animadversorum, inprimis quod ad sensuum conditionem attinet, consideratione. Auctor Ernestus Foerster. Kiliæ, 1820.

Diss. Inaug. exhibens Specimen historiæ Docimasiæ pulmonum. Auctor Carolus Fridericus Nagel. Kiliæ, 1818.

Diss. Inaug. sistens observationes quasdam De Insectorum Vermiumque Structura. Auctor Henricus Mauritius Gaese. Kiliæ, 1817.

Laboriæ Parietinæ seu Lichenis Parietini Linn. Analysis chemica, denuo instituta. Auctor Joannes Mannhardt. Kiliæ, 1818.

Diss. Inaug. Sistens Lactucæ Virosæ et Sativæ Analysin Chemicam. Auctor Augustus Klink. Kiliæ, 1820.

De Phthisi Adversaria quædam. Auctor Elias Theophilus Hempel. Kiliæ, 1818.

Introductio in Commentationem de Digitalis Purpureæ Viribus usuque Medico. Auctor P. W. Jessen. Kiliæ, 1820.

De Proportionibus quatuor Elementorum Corporum Organicorum in Cerebro et Musculis. Auctor Carolus Christianus Sass. Kiliæ, 1818.

Diptera Exotica, Sectio II. Antennis parum articulatis. Auctor Dr C. R. G. Wiedemann. Kiliæ, 1821.

Tabulæ Nervorum Uteri. Auctore Friderico Tiedemann, Anatomes et Physiologiæ Prof. in Acad. Heidelb. Folio Heidelbergæ, 1822. It is printed in the largest folio size, and contains two highly finished engravings on copper, and two outline lithographic prints, after designs from nature by Professor Roux. This work is imported by Mr Ackermann, Strand, where it may be inspected.

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## ERRATUM.

In Dr M'Ghie's paper on the Proximate Causes of Inflammation, Vol. xviii. p. 372, foot note, it is stated, that the peculiar colour (of the cineritious substance of the brain) is known to be owing to an infinite number of blood-vessels which ramify through it. It ought to have been—is known to be *principally* owing to an infinite number of blood-vessels which ramify through it.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. JULY, 1823.

# PART I.

## ORIGINAL COMMUNICATIONS.

### I.

*An Experimental Inquiry on Poisoning by Oxalic Acid.* By ROBERT CHRISTISON, M. D. Professor of Medical Jurisprudence in the University of Edinburgh, &c. &c. and CHARLES W. COINDET, M. D. of Geneva, Member of the Med. Chir. Soc. of Edinburgh, &c. &c. Read before the Medico-Chirurgical Society of Edinburgh, January 8th and February 5th, 1823.

(Continued from p. 199.)

### EXPERIMENTS.

BEFORE proceeding to close this Inquiry, by relating the experiments on which our inferences are founded, it should be mentioned, that almost all of them were repeated several times, and that those now given are chosen from a list of nearly 40 cases. We have described them very nearly in the same words as those employed in the original reports, taken while each animal was under the action of the poison.

*The two first experiments show the effects of the concentrated acid on the stomach, and the changes produced in those effects by dividing the conjoined pneumo-gastric and sympathetic nerves.*

### *Experiment I.*

Into the stomach of a full-grown dog, weighing 20 pounds, half an ounce of oxalic acid, dissolved in an ounce of tepid water, was injected by an aperture in the œsophagus about the middle of the neck, and immediately afterwards a ligature was applied below the incision. The animal had fasted about 16 hours.

2′. He began to make violent efforts to vomit, which were frequently repeated, till

12′, when they ceased; and the breathing became full and frequent; sensibility unimpaired; great restlessness.

16′ 30″. Breathing short, and at times suspended for a few seconds; he then hung the head in a peculiar manner, looked very dull, lay down on the side, and would not rise when stirred; at last, when he was set on his legs, he walked easily across the room; suddenly the breathing became very quick and short, and then ceased, although the chest was quite relaxed; he staggered a few paces, and sank down on the side at

20′, motionless and senseless; the body was now spasmodically extended for a second or two, after which he made a few convulsive gasps; no pulsation could be felt in the region of the heart after the 20th minute.

21′. Death being complete, the body was opened without delay. The *heart* was distended in its pulmonary cavities, and not contractile; the blood in those cavities was dark, in the aortal florid, in both fluid, and coagulated almost immediately in loose clots. The *stomach* was removed, and washed four minutes after death. It contained a small quantity of dark-brown fluid, of a thick and oily consistence; and its inner surface was lined with a large quantity of transparent mucus, not inspissated. The epidermis of the villous coat was wanting around the cardia, likewise on the whole posterior surface, and in patches on the anterior surface; and where it remained it was brittle, less adhesive, greenish-white on the middle of the interstices, and brownish-yellow on their margin. Where it was wanting on the posterior surface, there was considerable vascularity, and streaks of very black granular extravasation confined to the substance of the corion of the villous coat; and a ring of this granular extravasation surrounded the pylorus, which was excessively contracted. A very thick layer of white matter adhered firmly to the first six inches of the duodenum. The epidermis of that part of the gut was thick, and somewhat brittle. The internal coat of the œsophagus below the ligature, was corrugated, greyish-white in colour, but quite entire and strong.

### *Experiment II.*

In a full-grown dog, weighing 30 pounds, about half an inch of the conjoined pneumo-gastric and sympathetic nerves was removed on each side of the neck. Much anxiety and dyspnœa, and slight efforts to vomit, followed the operation. When he had remained at rest for half an hour, the breathing became easy and slow, but very deep. We then injected half an ounce of oxalic acid into the stomach, in the same manner as in the last experiment.*

Immediately he expressed great agony; but it is doubtful whether this should be attributed to the effects of the poison. For we were obliged to lay him on his side to inject it; and we have uniformly observed, that, in this posture, animals which have had the pneumo-gastric nerves divided, suffer so much from dyspnœa, that, in a short while, the tongue becomes very black.

When let loose, he seemed to suffer much, and was very restless.

20′. At times he breathed for a few minutes fuller and quicker, and became more restless. He seemed to labour under a peculiar dulness of sensation; did not stir when lashed, or even when pricked in the hindlegs; yet was perfectly sensible when called, and walked easily, without stiffness or paralysis. He had never the slightest effort to vomit.

35′. Every respiration seems to be attended with agony.

40′. The breathing continued to be at intervals fuller and more frequent, and at that time there seemed to be an increase of uneasiness; some tremor of the thoracic muscles, sensible to the hand only.

1<sup>h.</sup> He was quite sensible, walked easily, though deliberately, and tried to escape; he was somewhat restless; the breathing had become regular, easy, full, and about 6 in a minute.

2<sup>h.</sup> 15′. He was less restless, and quite sensible, though dull and feebler; he walked deliberately, but staggered a little; the breathing continued quite regular, deep, and was 11 in a minute: the heart could not be felt pulsating; the thoracic muscles were still tremulous.

2<sup>h.</sup> 30′. No change; he was then left, and at

5<sup>h.</sup> 30′ was found lying on the right side, quite insensible, with the extremities spasmodically extended, and making his last convulsive gasps before death.

---

* We may notice here in general, that whenever the poison was introduced into the stomach in the subsequent experiments, the animal had fasted about the same time as in last experiment (16 hours), and the œsophagus was in like manner secured by a ligature.

The body was examined 40 hours after death. The *lungs* were spotted black on the right side, on which he lay; and on the mediastinal surface of the left side; and of a uniform faint scarlet colour on the costal surface of the left side. Their internal structure was somewhat gorged at the depending part of each lung, but elsewhere quite natural. The blood in the *heart* was dark, very nearly of the same tint in both systems, and loosely coagulated. The *stomach* was externally somewhat injected with dark blood. It contained a large quantity of thick, greenish-black matter, and a ball of hair. Internally, the greater part of the villous coat was strong and entire; but near the cardia, a portion on the posterior surface had its epidermis soft and brittle. The whole posterior surface was of a very black colour, from blood extravasated in the villous coat, and altered by the acid. The rest of the tunic was covered with scarlet specks, faint on the fundus and middle portion, and very bright around the pylorus. The *duodenum* was healthy. *

*The two following experiments show the comparative effcts of the diluted and the concentrated acid.*

### *Experiment III.*

Six ounces of a solution, containing 33 grains, were injected into the stomach of a dog about 8 or 10 pounds in weight.

2′. A strong effort to vomit, repeated at 8′ 30″, and again at

12′. He now spreads the legs in a peculiar manner, and hangs the head; respiration hurried; hindlegs stiff.

18′. The efforts to vomit, which have been increasing in frequency and violence, are now preceded by hurried breathing, at first short, afterwards very deep and convulsive.

25′. The efforts to vomit are not nearly so strong; he spreads his legs, hangs the head, and looks very dull, but is sensible; the hindlegs are permanently rigid, and, in consequence, he assumes very odd and peculiar postures, both in standing and in walking.

29′. The breathing becomes suddenly more and more hurried, shorter and shorter, and at last completely suspended;

---

* We have always found less corrosion in the stomach when the nerves had been divided; and in the case related above this is the more remarkable, when we consider that the body was left 40 hours before examination. The reason is, probably, that the animal lives long enough for a great portion of the acid to be absorbed, so that no corrosion takes place after death.

immediately a violent attack of general opisthotonos succeeded, during which he discharged some fluid, fetid feces, not reddening litmus; the whole body then became gradually relaxed; and at

30′, He made one convulsive gasp only: the heart fluttered faintly for half a minute or a minute afterwards. The body was examined immediately; the *heart* was found contracting slightly, and could be made to contract as long as the examination lasted. The blood was fluid, and in the arteries dark, [we forgot to notice whether it coagulated.] The *stomach* and *intestines* were natural externally. The stomach contained scarcely an ounce of transparent fluid, and some feculent-like matter. Its internal coat was somewhat corrugated, of a light ash-grey colour, perfectly strong and entire, and without the slightest vascularity. The intestines contained some fluid, which reddened litmus as low down as the cæcum. The *blood* in the veins of the stomach, and upper portion of the mesentery, was not charred, but quite fluid, and coagulated naturally after it was withdrawn.

### *Experiment IV.*

Thirty-three grains dissolved in two parts of tepid water were injected into the stomach of a dog about eight pounds in weight.

7′. The efforts to vomit have commenced.

30′. For some time they were frequently repeated, but they are now more rare and less violent. The breathing is full and somewhat hurried. He looks dull, and always remains in the same place and posture.

1h. The efforts to vomit are now very slight. The breathing is shorter and quicker. He is very dull and stupid in appearance, yet quite sensible. The hindlegs are feeble. He preserves his posture most obstinately.

1h. 15′. The efforts to vomit have almost ceased. The breathing is still quicker and shorter. The hindlegs are not affected.

1h. 20′. The efforts to vomit have ceased. The respiration is irregular in fulness and frequency. The sensation of the hindlegs is much impaired; but the rest of the body continues quite sensible. He walks about easily, but not unless forced.

1h. 25′. He now staggers when he tries to walk.

1h. 30′. The breathing is short, and 34 in a minute; and is increased at intervals both in frequency and fulness. He lies constantly on the side, is very dull, and the sensation of the whole body is somewhat impaired.

1h. 45′. Respiration 120, fuller and more regular. The insensibility increases. He still lies constantly on the side, with the whole body relaxed; but when stirred, he rises and staggers about like a drunk person. The hindlegs are very weak, but not rigid.

1$^{h.}$ 50.′ Little change. The eyes are less sensible.

2½$^{h.}$ The breathing is considerably slower. The eyes are scarcely sensible when the hand is waved before them, and he does not stir when struck; yet, if previously roused by shaking, he staggers about a little, and continues for a few seconds somewhat sensible.

4$^{h.}$ The breathing is short, soft, and 11 in the minute. The insensibility has become complete, and the whole body quite flaccid.

7$^{h.}$ He was found dead, and so flaccid and warm that he probably had died only about an hour before. The body was examined nineteen hours afterwards.

The *stomach* was externally healthy. It contained a large quantity of thick, coffee-coloured fluid, and its inner surface was lined with much mucus. The villous coat was everywhere chequered with angular prominent specks of a bright scarlet colour, in some places very intense, confined here and there to the epidermis, but generally extending likewise to the corion. For a considerable space around the cardia, the villous coat could be easily scraped off, but its porous structure was entire. Near the pylorus it was perfectly strong. The posterior surface of the membrane was interspersed with lines of black granular extravasation, prominent, and not extending deeper than the villous coat.

*The two next experiments show what influence the division of the pneumogastric and sympathetic nerves has on the action of the diluted acid.*

### *Experiment V.*

A drachm of oxalic acid, dissolved in eleven parts of tepid water, was injected into the stomach of a strong rabbit.

8½′. The head began to be drawn back, and remained permanently so. The breathing soon became hurried, and the animal seemed very uneasy.

10′. Convulsions excited by touching him. Soon afterwards he was seized with most violent and frequent opisthotonos, by which the whole body was raised into the air, sometimes to the height of two feet. The breathing was suspended during each paroxysm of opisthotonos and for a few seconds afterwards; and during the interval it was laborious.

12′. Insensibility has been coming on gradually, and is now complete. The convulsions have ceased. The breathing is very small, and becomes rapidly slower and less distinct. The heart cannot be felt.

13′. The breathing has ceased. The body was then examined without delay. Three minutes after death, the *heart* was found neither contracting nor contractile; and its blood was florid in the aortal, dark in the pulmonary cavities. The *stomach* was removed and washed a minute and a half after death. It contained a considerable quantity of half-digested herbs; and a thin layer of white, dense, stringy matter adhered firmly to its inner surface. The epidermis had everywhere a yellowish-brown colour, was somewhat brittle and less adherent, but its porous structure unaltered. The *duodenum* was healthy, and its inner surface covered with a very thick layer of a dense, white, firmly adhering matter.

### *Experiment VI.*

The same quantity of acid was injected, under the same circumstances, into a rabbit about the same size and age; but the pneumogastric and sympathetic nerves were divided 15 minutes before.

10′. The head began to be drawn back upon the neck, and he shook it several times. The breathing became gradually, but rapidly, very quick and full, and, finally, was at intervals completely suspended. Several violent paroxysms of opisthotonos immediately succeeded. Then the animal became rapidly insensible, the convulsive paroxysms ceased, the whole body was relaxed, the breathing very small and short, at last imperceptible, and the pulsations of the heart could not be felt. A few convulsive inspirations ensued till the 14th minute, when death was complete.

The body was examined immediately. The *heart* was not contractile. The blood was fluid, dark in the pulmonary cavities, and florid in the aortal, and coagulated slowly. The *lungs* were perfectly natural. The *stomach* was cut open, and washed two minutes after death. Externally it was quite healthy. It contained a quantity of half-digested herbs, and was lined with a thick layer of dense white-coloured matter. Three-fourths of its internal surface had a light yellowish-brown colour; and the villous coat where it was so tinged was more easily scraped off than elsewhere. There was on no part of it any unusual vascularity.

*The three next experiments show its comparative effects when introduced by the stomach, by the pleura, and by the cellular tissue.*

### *Experiment VII.*

Thirty-three grains dissolved in six drachms of water were injected into the stomach of a dog, weighing 18 or 20 pounds.

12′. Efforts to vomit at distant intervals, and not very violent.

32′. Efforts rare; he hangs the head; the respiration is smooth, deep, regular, and not quickened.

47′. The efforts to vomit have ceased; the breathing continues the same; he walks sluggishly, and looks dull; but is perfectly sensible.

1h. 25′. He is affected with a peculiar kind of somnolency. He sits with the head drooping much, apparently unconscious of any thing that goes on around him; yet he yelps when laid hold of, and is, in every respect, perfectly sensible. He breathes very smoothly and deeply. The pulsations of the heart are rather frequent and feeble. He staggers when forced to walk.

2h. 40′. Does not stagger so much. No other change.

4h. He is more feeble, but does not stagger, and is perfectly sensible.

24h. Some dulness, but he is quite sensible; and, except weakness, has no decided affection.

48h. Is both sensible and active; runs briskly about, and chews morsels of bread.

3 days. He was found lying on the side, nearly insensible, and breathing short and slow. When shaken and put upon his legs, he tries to walk, but staggers and leans on the wall. The hind-legs are very feeble.

3 d. 8h. Found dead. The body was examined 40 hours afterwards. The stomach was perfectly natural. There was no vascularity externally; and the internal membrane was quite entire, strong, and white. The wound in the neck had sloughed and suppurated.

### *Experiment VIII.*

The same quantity, similarly dissolved, was injected into the left pleura of a dog about the same size. He struggled violently; and, when let loose, ran to the other end of the room, apparently sensible, though dull.

10′. The breathing suddenly became hurried, and very deep, both in inspiration and expiration. He hung the head; and, though sensible, would not stir when struck. In a short while his tail was reversed, the respiration became very difficult, and almost suspended; and he sank gradually down upon the belly; the breathing then became easier for a few seconds.

11′. Another paroxysm of suspended respiration, during which the tail was still more distinctly reversed, and the whole body spasmodically extended. Then, at

12′, the spasm relaxed; the whole body became flaccid; and two or three convulsive gasps ensued at remote intervals.

The body was examined two days after death. The *pleura* was quite natural on both sides. Some blood, extravasated around the incision, was completely charred. There was a quantity of dirty brownish-red, semifluid matter in both sacs, rather sweet to the taste, and reddening litmus. The lungs were here and there scarlet on their surface, and gorged posteriorly. The villous coat of the stomach had a brownish-yellow tint at its œsophageal end, and there was lined with bile; but at the pyloric end was rosy-red, and without bile. The whole intestines were natural, internally and externally. The moisture on the peritoneum did not redden litmus.

### *Experiment IX.*

One hundred and sixty grains, dissolved in four ounces of water, were injected into the cellular tissue of a dog, weighing about 30 pounds, by a wound at the flexure of each thigh. The syringe was thrust three inches under the integuments; and, when the injection was completed, the wounds were carefully stitched, so that not a drop could escape. The fluid was felt forming different tumours on the lower part of the abdomen, and on the inside of each thigh.

13′. From the commencement of the injection, he had some weakness and stiffness of the hindlegs, and began to look dull.

45′. The hindlegs are scarcely sensible when pricked; but the sensation of the rest of the body is unimpaired; the breathing is deep; he lies on his side.

50′. He rose with peculiar stiffness, and lay down again upon the belly, with the hindlegs stretched out on one side, and the forelegs on the other; the hindlegs are always stiff, and sometimes convulsively extended.

1ʰ· 15′. The breathing became suddenly hurried. Soon afterwards there was some stiffness of the chest and neck. When raised, he stands stiffly in the same posture for a few seconds, and then sinks gently down upon the belly. He whines at intervals.

1ʰ· 55′. He is much duller, but in other respects seemed to be improving till now, when the breathing again became suddenly hurried. The heart beats with great rapidity, and with such violence as to be heard at a short distance. All the limbs are rigid, and the neck slightly so. Though very dull, he continues quite sensible, for he shuts his eyelids when the hand is waved before him, and he follows a basin of water carried up and down.

$2^{h.}$ 12′. The breathing is still exceedingly hurried, but at times suspended for a few seconds; the heart still beats with extraordinary force; his dulness increases; he continues to walk about a little, but very stiffly; the tail has been gradually becoming stiff and straight.

$2^{h.}$ 20′. The suspension of breathing is more decided, now evidently dependant on spasm of the thoracic muscles, and is accompanied with reversion of the tail. These paroxysms cause him great agony, and they become rapidly longer and more violent. Even in the intervals, the breathing is difficult, and expiration convulsive.

$2^{h.}$ 45′. The pulsations of the heart are much more feeble, but still very frequent. The paroxysms of suspended respiration abate in violence, but the intervals are shorter.

$2^{h.}$ 55′. The paroxysms have ceased. The whole body is relaxed, and in a state of complete coma; breathing short, frequent, and somewhat convulsive.

$3^{h.}$ 30′. No change, except that the breathing is slower and shorter.

$4^{h.}$ Breathing very short, and only 14 in a minute; the pulsations of the heart cannot be felt.

$14^{h}$. Found dead, cold, and rigid.

The body was examined about 36 hours afterwards. The muscles of the belly, as high as the umbilicus and the superficial muscles on the inside of each thigh, were pale, greenish, and acid; but no fluid could be detected around them. The lungs were every where scarlet on their anterior surface, bluish-black posteriorly, scarlet internally, yet their air-cells natural. The blood of the vena cava and aorta was dark, and very imperfectly coagulated; there was nothing unusual on the inside of the vessels. [In another case of the same kind, the blood in the heart, and the exhalations of all the serous surfaces, and the frothy fluid of the bronchi, did not redden litmus.] The villous coat of the stomach was lined with bile, and stained brownish-yellow. The rectum was redder than usual, not vascular; and the rest of the intestines were perfectly healthy.

*The next experiment shows the action of the poison, when introduced at once into the veins.*

### *Experiment X.*

Eight grains and a half of acid were dissolved in 15 drachms of water at 100°, and 3 drachms slowly injected, every five minutes, into the right femoral vein of a dog weighing about 20 pounds,—the inferior division of the vessel having been previously tied.

After the two first injections, the animal trembled, and the breathing became somewhat fuller; after the third, the breathing was slightly convulsive, but soon became again natural; thirty seconds after the fifth, he made a few sudden deep inspirations for half a minute, then some unavailing efforts to inspire, and he died without a struggle. The heart did not pulsate after the last inspiration. [During a repetition of this experiment, the pulsations of the heart were observed to become suddenly very feeble after each injection.] The body was then opened immediately. The right cavities of the *heart* were distended, and not contractile. The blood in those cavities was dark, and had begun to coagulate; that in the left side was florid, fluid, and soon coagulated in the usual way. The blood in both these cavities did not redden litmus; and the serum, which had separated next day from that in the right side, gave no precipitate with hydrochlorate of lime. [Neither did that of the vena cava in another dog killed in the same manner.] The *muscles* preserved their contractility.

*The two next experiments show the action of the poison introduced into the intestines, and the effect of applying it to a part, of which all connexion with the body has been destroyed, except by blood-vessels.*

### *Experiment XI.*

In a puppy about 8 or 10 pounds weight, an ounce of water, containing 45 grains of acid, and at the temperature of 100°, was injected into a loop of small intestine two feet long. A single ligature was applied strongly at one end, and a double one at that by which the syringe was introduced.

19′. An attack of vomiting, preceded for some minutes by deep breathing, which afterwards became easier.

40′. Breathing small and frequent,—occasionally fuller, and somewhat convulsive; dulness.

1$^{h.}$ 18′. Breathing occasionally interrupted by a slight sudden expiration, like a short cough. Hindlegs stiff. He hangs the head, and remains in the same posture.

1$^{h.}$ 45′. The breathing is quicker. The catches in expiration now occur together in paroxysms, and cause agony. Hindlegs very rigid. Two slight extensions of the head and tail; posture very peculiar. (*See Experiment 3d.*)

1$^h$. 55′. There are now distinct spasmodic paroxysms. First, the breathing becomes convulsive, and deeper and deeper; at last, the chest is so firmly fixed, that with great effort he expands and contracts it only to a very small extent. Then the spasms relax, with gurgling cries and slight barking, and he soon breathes freely, but hurridly. The legs are quite insensible.

2$^h$. At the height of the paroxysm, the breathing is wholly suspended.

2$^h$. 35′. The paroxysms have become milder; he cannot stand when raised.

3$^h$. Paroxysms less distinct, but longer, and accompanied with slight reversion of the head and tail. Breathing in the intervals short; the eyes alone are sensible.

3½. He is now in a state of almost pure coma, without spasmodic paroxysms.

6$^h$. Breathing slower and uniform, and expiration accompanied with a bark. Slight opisthotonos produced by touching his back smartly; but he has no other sign of sensation.

9$^h$. Barking very feeble; no other change.

16$^h$. Found dead and rigid.

The body was examined 8 hours afterwards. The blood was equally dark in both systems. The intestines were perfectly natural, internally as well externally. The ligatures were firm; most of the injected fluid gone. The fluid of the thoracic duct does not redden litmus.

### *Experiment XII.*

The last experiment was repeated on a puppy of the same size. But before the poison was injected, a double ligature was tied at each end of the portion of intestine, the gut divided betwixt them; and all its connections, by means of the mesentery, were then dissected away with great care, except four arteries and veins; the knife being carried round close to each vessel.

10′. Some stiffness of the hindlegs. Begins to hang the head and look dull.

26′. An attack of vomiting preceded, as in the last case, by deep respiration.

33′. The head and tail were twice extended slightly; breathing at times convulsive in expiration. Much duller.

1$^h$. 7′. He is affected with a peculiar kind of dulness of sensation, or somnolency; will not rise; yet when raised, can both walk and stand. Expiration still convulsive.

1h. 30′. He is affected with paroxysms of suspended respiration, precisely as the other was in 1h. 55′.

2h. 5′. The paroxysms are now very distinctly marked, and are accompanied with more general tetanus than in the last animal. The insensibility has already become almost complete.

2h. 40′. The paroxysms of spasm have gradually and almost entirely subsided, and he now lies in a state of pure coma.

5h. 10′. He was found dead, warm, and stiff. The body was opened 17 hours afterwards. The ligatures were firm, and most of the injected fluid was gone. The mucous coat of the insulated portion of intestine was somewhat softened, but not discoloured. There was no vascularity in any part of the intestines. The blood was black in both systems of vessels. The lungs were of a scarlet colour on many parts of their anterior surface.

### *Experiment XIII.*

*This experiment shows the action of the poison when introduced into the sac of the peritoneum.*

Twenty-two grains dissolved in four* ounces of water were injected into the peritoneal sac of a strong cat, through an incision in the upper and lateral part of the abdomen; and the aperture was immediately secured with great care by stitches. Little pain seemed to follow the injection. The animal in a short while, however, began to be very restless and uneasy, and tried to vomit.

10′. It looked very dull, and twice jerked its head backwards.

11′. The heart beat feebly. It stretched out the paws, and yawned; the tail became stiff; and the eyes nearly insensible.

12′. He now had general stiffness of the whole trunk and extremities, and made fruitless efforts to inspire.

13′. These were suddenly succeeded by relaxation of the whole body, and then by a few convulsive gasps and twitches of the lumbar muscles.

14′. The heart continued to tremble.

The body was examined 24 hours after death. The sac of the peritoneum contained scarcely a drachm of fluid, which reddened litmus [In the case of another dog, 12 pounds in weight, that survived above 9 hours, when 17 grains were injected into the peritoneum, we found nearly as much fluid as was introduced; but by analysis, it was found to contain no acid, and to be in fact pure limpid serum; the peritoneum was also very vascular.] The peritoneum had a faint greyish-brown colour. The blood of the mesaraic veins does not affect litmus. The stomach and intestines are natural internally. There are some irregular scarlet patches on the surface of the lungs.

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* Erroneously transcribed *two ounces* in the former paper, p. 178, l. 22.

*The two next experiments show the effects of the neutral oxalates of potass and of ammonia.*

### *Experiment XIV.*

Thirty grains of oxalic acid dissolved in 24 parts of water and exactly saturated by sub-carbonate of potass, were injected into the stomach of a young rabbit.

8′. The breathing begins to be increased in frequency.

13′. Great feebleness of the limbs, so that they may be placed in almost any posture; occasional slight extension of the hind-legs.

15′. Opisthotonos brought on by touching him, and then frequently repeated; breathing slow, laborious, and inspiration very difficult; he becomes insensible.

17′. Breathing has gradually become shorter and shorter, and has now ceased. The body was opened immediately. The heart was not contractile. The blood was still fluid; and more florid in the aortal than in the pulmonary cavities, yet darker than natural. The stomach was natural externally; internally it had a uniform, light cherry-red blush, not referable to vessels.

### *Experiment XV.*

A drachm and a half of the oxalate of ammonia (ascertained to be neutral) was dissolved in eleven parts of tepid water, and injected into the stomach of a strong cat. In 5½ minutes the breathing became very hurried, and soon afterwards it was attacked with occasional opisthotonos and convulsions. In a few minutes more it became insensible; the pulsations of the heart could not be felt, and death was complete nine minutes after the injection.

The body was opened without a moment's delay. The blood in the aortal side of the heart was more florid than in the pulmonary, but less so than during life: It was fluid, and soon coagulated naturally. The stomach internally and externally was perfectly natural.

### *Experiment XVI.*

*This experiment shows the effects of magnesia as an antidote.*

Two drachms of oxalic acid, dissolved in ten parts of tepid water were injected into the stomach of a young dog, weighing about 24 pounds.

4′. The efforts to vomit commence. 11′. Efforts repeated for the fourth time. The ligature was then slackened, and three drachms of magnesia suspended in six ounces of water were injected, and the whole retained by again tightening the ligature.

12′ 30″. Efforts to vomit renewed. He hangs the head and looks dull, but runs briskly when stirred. Breathing regular and easy; and he is not restless.

35′. The efforts to vomit have not recurred since the 20th minute. He continues dull, but sensible, and breathes easily. Yelps when meddled with.

$2^h$. He is rather more brisk, and has no affection of the limbs, or of the breathing, or of the pulse.

$3^h$. He is more lively, but feebler.

$25^h$. He continues quite sensible, but is feeble and languid; walks with difficulty, but without staggering.

He was then strangled, and the body examined immediately. The heart continued to pulsate vigorously for at least ten minutes after death. The lungs were natural. The fundus of the stomach and its pyloric end were quite healthy; but over the rest of it, the internal membrane was red, thickened, rough, and in patches wanted the epidermis. The membrane, where it was entire, was not brown or brittle. There was a heavy purulent odour in the cavity of the stomach, but no pus could be collected. Neither was any magnesia visible. There seemed to be little even in the intestines.

### *Experiments XVII. and XVIII.*

We originally intended to describe these experiments made with the citric and tartaric acids; but they present nothing worthy of note, and need not be detailed. No obvious symptom followed their injection into the stomach; the animals even seemed to suffer no inconvenience.

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## II.

## *Cases of severe Burn, with Dissections, and Remarks.* By WILLIAM CUMIN, M. D. One of the Surgeons to the Royal Infirmary, and Surgeon to the Asylum or Lunatics, Glasgow.

It has occurred to me, that the following cases of burn are not unworthy of the attention of professional readers, as they tend to establish a point in the pathology of that injury, which may serve to explain its very frequent fatality, and perhaps to open up interesting views respecting the action of powerful external stimulants on the cutaneous surface. I apprehend also, that the establishing of this point will naturally lead to a more free employment of depletion than has been hitherto had recourse to in such cases; although I do not mean to assert, that the use of venesection has not been recommended in cases of burn, by some of the best writers who have treated of this subject.

My thoughts were first directed to the occurrence of internal inflammation in cases of burn, by the symptoms of high arterial action which I had often witnessed in such injuries, and more particularly by the appearances presented on dissection, in the case first detailed, which occurred to me in the year 1818. Since that period, I have endeavoured to confirm or refute the opinion which I then conceived; and in all the instances in which I have made an examination after death, I have found reason to be satisfied with its accuracy. I am happy to find, from a late edition of Sabatier's *Medécine Operatoire*, that *M. Dupuytren* is in the practice of promulgating in his lectures a similar doctrine; although he, or the editor of that work, appear to lean considerably to the gastro-enteritic hypothesis of Broussais.

Case I.—M. Y. ætat. 8, was admitted into the Royal Infirmary, November 5, 1818, having her neck, left cheek, arm and breast, left side of the abdomen, and right shoulder, much scorched. The surface was red, and in many points covered by small vesicles. The palm of the left hand and the thumb, particularly the latter, had also suffered severely. She was languid and chilly, with cold feet; pulse quick and small, respiration rapid, tongue clean, with urgent thirst. Vinegar had been applied immediately after the accident; turpentine dressings; a little wine occasionally; anodyne at bedtime.

She continued in this state of collapse during the two succeeding days, until the 8th, when I found that symptoms of reaction had rendered it necessary, in my absence, to diminish the quantity of wine allowed. Her face was now flushed, pulse 128. On the succeeding day, in addition to these symptoms, she complained a good deal of her chest and back. On the 11th, the pulse was 124, face flushed. Several sloughs had formed over the chest, and the thumb appeared completely sphacelated. The discharge from the burned surface was not yet purulent. On the succeeding day, the pulse had risen to 132, and she complained much of headach, which however was readily relieved by shaving the head, and bathing with vinegar. An extensive slough formed over the left shoulder; and on the 15th, a separation of the sphacelated parts began to take place, although with only a scanty discharge of matter. On the 16th, the pulse was 128; face flushed, much pain in the back of the head, and she had now a frequent hard cough, with pain on deep inspiration.—A dose of calomel was ordered; vinegar cloths to the head; wine intermitted. On the 20th, great relief had been experienced from exchanging the turpentine dressings for spermaceti ointment. Her pulse was 120, and so feeble, that I allowed her a small quantity of wine, to be given with caution.

On the 23d, the pulse was 116; she had passed a good night, and felt easy; her appetite was improving. The greater part of the sloughs had now separated; and the ulcerated surface extended to more than half the trunk of the body, from the pelvis to the throat, and over the whole of left arm. On the 10th of December, she had continued to lose ground since the beginning of the month, in consequence of copious purulent discharge and colliquative diarrhœa. A considerable slough had formed in the right haunch. The ulcers were this day of a livid appearance, and the countenance much sunk. Dissolution took place in the evening.

On inspection, the left pleura pulmonalis was found adhering firmly to the pleura costalis, throughout its whole extent. Some thin membranous adhesions were observed in the right side of the chest. The lungs and abdominal viscera, appeared healthy.

Case II.—J. N., ætat. 4, was admitted into the Royal Infirmary, November 16th, 1822, having the inner side of the left arm and thigh, with the hypogastrium and chin, severely burned, by her clothes catching fire the preceding night. On the arm and thigh, vesication had taken place; but the cuticle on the chin and abdomen had been rubbed off, leaving the skin of a dusky hue.—Turpentine dressings.

On the 21st, after a restless night, she fell quiet at four in the morning; and at half past nine her face was observed to be livid, and her breathing somewhat stertorous, pupils much contracted, pulse frequent, and almost imperceptible at the wrist. Although a considerable quantity of blood was procured from the temples by leeches, no relief followed, and she died at 1, *p. m.*

On inspection, the pia mater was observed in many places morbidly vascular, with several patches of extravasated blood in different parts of its surface. The vessels of the velum interpositum and plexus choroideus were very turgid. An ounce of bloody serum lay in the basis of the skull. About two ounces of serous fluid were observed in each side of the thorax: a little fluid in the pericardium; lungs healthy. The peritoneal coat of the small intestines exhibited in many places a blush of inflammation. Three ounces of serous fluid were taken from the cavity of the abdomen.

Case III.—M. S., ætat. 7, was admitted into the Royal Infirmary, December 21st, 1822, having the greater part of the abdomen, the left side of the body, the left cheek, a portion of the back, and the upper part of both thighs, burned. The cuticle in several places had been raised into bullæ. Pulse 96, weak. The unburned parts of the body, and the extremities, were cold. —Turpentine dressings.

On the 22d, vesication had taken place over the whole burned surface. Pulse about 116 in the temple; could not be distinctly felt at the wrist. During the preceding night, had two attacks of convulsion of the limbs, and was very low, with cold extremities.—Wine, opium, external warmth.—Under this treatment, the pulse became rather stronger; but she was attacked with vomiting, and refused food. Opium, both externally and internally, and brandy, were now ordered. On the 25th, the symptoms had suffered a remission, so that she seemed, on the whole, better; but she sank gradually, and expired in the evening.

On inspection, the omentum was found so vascular, that its colour approached to scarlet. The abdominal and intestinal peritoneum was in many places crowded with red vessels. Portions of the intestines were in different places glued to each other by a thin layer of coagulable lymph. Near the termination of the ileum, there was an intus-susception from below, upwards of two inches in extent. When the intestines were slit open, the mucous membrane, especially of the small ones, showed strong marks of acute inflammation; and many gangrenous-like spots were seen in different parts of it. Two lumbrici were taken from the colon.

Case IV.—G. M., ætat. 7½, was admitted into the Royal Infirmary, December 31st, 1822, having her face, belly, and inner side of both arms burned. The cuticle in some of the burned parts was raised into vesications, and from others it had been entirely rubbed off. Pulse 92, very weak, feet cold. A little wine; turpentine dressings. On the 2d of January 1823, the burned surface of the belly was in a state of suppuration, and she spoke and took food freely. She was troubled with cough, and the bronchi appeared gorged with mucus. Poultice to the belly; turpentine dressings to other parts. In the evening of this day, I found her complaining so much of pain in the abdomen and thorax, with rapid oppressed respiration, that I directed blood to be taken from the arm. Only four ounces were procured, which had a sizy appearance. Some relief of the symptoms followed, but in so small a degree, that the house surgeon was induced to apply a blister to the chest. Next day she was reported to have had a better night, but the pulse was 140, and she was exceedingly fretful. Several sloughs appeared now to be forming, both on the right arm and right side of the abdomen. Blood to be drawn from the saphena vein *pro viribus.* On the 4th she had a very restless night, with delirium, and the pulse had not fallen. No blood had been obtained from the saphena. The respiration was rapid, but deep inspiration did not seem to occasion pain. The symptoms continued to increase till the 8th, when a delusive, though slight, remission took place, and the burned parts presented a more favourable aspect; but she sank gradually, and died in the evening.

On inspection, nothing morbid presented itself within the cranium. There was a single old adhesion of much firmness on the left side of the chest. In the right cavity, several red patches were perceived on the pleura pulmonalis. The mucous membrane of the bronchi was very vascular; and the substance of the right lung contained in some parts numerous whitish tumours; two or three of which were as large as gooseberries. Both the peritoneal and mucous coats of the small intestines were in many places morbidly vascular, and several gangrenous-like spots were seen in the mucous coat. The viscera healthy.

Case V.—L. M., ætat. 27, was admitted into the Royal Infirmary January 25th, 1823, having almost the whole of the body severely burned. The cuticle of the thighs was wrinkled, and of a dark colour. The limbs, especially at their upper part, were very tense, and presented an ashy grey appearance. She moaned much, and complained of thirst and cold; and was in a very exhausted state. No pulse was perceptible at the wrists, or in the temples; and the heart was felt vibrating feebly. Turpentine dressings, wine, anodynes.

On the 27th she expired.

On inspection, the peritoneum lining the lower part of the abdomen, and that covering the greater part of the small intestines, showed a highly increased vascularity, which extended also to the mucous membrane, as was ascertained when the intestine was slit open. No effusion of lymph or adhesions of the intestines; but ℥iss. of serous fluid were taken from the cavity of the abdomen. No urine in the bladder; kidneys appeared much firmer than natural. Two ounces of serum were found in the right side of the thorax, and ℥iss. in the left. Lungs more than usually loaded with blood, but otherwise healthy.

In the first of these cases, the inflammatory attack on the pleura does not appear to have taken place until four days after the occurrence of the *Burn;* nor does it seem to have reached its greatest degree of intensity, for several days following. The patient, however, was not cut off by this disease, which subsided after the effusion of lymph, and the adhesion of the parts; but lingered on for about a month, and at length sank under the effects of irritation and exhaustion. The newly formed membrane on the left side of the chest was opaque and spongy, evidently of recent date, and referrible to the period when symptoms of thoracic inflammation existed. The propriety of depletion in this case was sufficiently obvious; and it would certainly have been acted upon, had I not been deterred by the presence of symptoms of debility; besides, I had at that time still to learn the frequency of the occurrence of internal inflammation in cases of *Burn.* The disagreeable reflections which naturally arose in my mind on inspecting the chest after death, caused the case to make a more than usually deep impression, and determined me to pursue the inquiry on every favourable opportunity.

From a survey of these cases, it appears, that internal inflammation consequent on injury from *Burn*, may arise in the head, in the chest, and in the abdomen; and that the tendency of the inflammatory action is to produce effusion within the cavities of serous membranes. It is also clear from these dissections, that the mucous membranes participate in the inflammation. That of the digestive organs is not, however, affected in the exclusive manner which the favourers of the new French doctrine of Broussais would lead us to believe; but, on the contrary, it suffers much less than membranes of the serous class.

Although there seems to be evidence, that distant internal parts sympathize with the burned surface and suffer inflammation, yet it is still more distinctly shown, that the parts immediately subjacent to the surface that has been exposed to a high temperature, suffer most remarkably. In the first case, the left side of the thorax had been much scorched, and the left pleura was that when inflammation and adhesion had taken place. In like manner, in the third case, the parietes of the abdomen were much injured by the application of fire, and the peritoneum bore marks of intense and far advanced inflammation. If it should appear to any one that the intus-susception, which was found in this case, might have given rise to the inflammatory symptoms, I would beg to refer to the high authority of Dr Baillie (Morb. An.) to prove, that intus-susception often exists without causing any injurious consequences. My own experience coincides exactly with this opinion. In one maniacal case, which I inspected after death, and where severe and continued diarrhœa had existed, I found an intus-susception of the ileum, which, when drawn out, measured 22 inches; yet the part exhibited only an increased vascularity, and some spots of extravasated blood.

In the case of Maclaren, who died on the second day after the infliction of a very extensive burn, the traces of internal inflammation showed that it was merely in its early stage. Increased vascularity of the peritoneum and intestines, and serous effusion into the cavities of the thorax and abdomen, were alone discovered. In this deplorable case, the stage of collapse never gave place to any reaction, which would, no doubt, have happened, had she survived for a longer period; and, in that event, I should have expected to find effusion of coagulable lymph, as well as the other marks of inflammation. The occurrence of inflammation and effusion in internal parts, after the surface has been burned, may be regarded as the result of an effort of Nature to relieve herself from the consequences of so severe an injury; and it may perhaps furnish an illustration of the mode in which internal parts, in a state of inflammation, are relieved by the application of vesicatories to the surface. Hence I am inclined to believe, that extensive and severe vesication by cantharides, where the subjacent internal parts are wholly free from inflammation, will probably cause irritation of these parts, and perhaps dangerous effects. In erysipelas of the face and scalp, we have delirium, and, if the disease proceed, effusion or extravasation within the skull, and death. In the case of a patient under my care, who had received a wound of the face with fracture of the ossa nasi, erysipelas made its appearance in about seven days from the accident; and she died with delirium, and other symptoms of cephalic affection, on the sixth day thereafter. Inspection of the head discovered the vessels of the pia mater and velum interpositum unusually turgid with blood; ℥ss. of limpid fluid was found in each lateral ventricle, and a small quantity tingid with blood lay in the base of the cranium. In this case, the external inflammation did not disappear on the supervention of symptoms of inflammation of the encephalon; nor do I believe that the internal inflammation in such cases is the effect of metastasis, but of that consent of parts of which I have endeavoured to offer evidence in the cases of *Burn* now communicated. We have a collateral proof of this fact in the secondary fever of small-pox, which appears to arise principally from an affection of the mucous membrane of the throat and air passages, and which is not alleviated, but uniformly rendered more intense, by a full load of pustules.

The proportion of deaths, in cases of severe burn, is so considerable as to awaken very distressing feelings. During the last winter quarter, I treated in the Infirmary five cases of this description, and lost no less than four of them. Of these, however, three were children, who are not only more unmanageable under such accidents than adults, but also suffer more from irritation; and the extent of the burned parts, in these cases, bore a very large proportion to that of the entire cutaneous surface.

Should the views which I have been led to form of the effects of *Burn*, in causing internal inflammation, be confirmed by more extended observation, it will probably lead to an improvement in the constitutional treatment of such injuries, by the more frequent and free employment of general and local blood-letting, than has been hitherto adopted. In a considerable proportion of cases, the swelling of the surface, in those parts where venesection is usually performed, will prevent this operation from being successful in abstracting blood; but there are few cases in which we may not draw off a sufficient quantity of it by means of leeches. The removal of the cuticle, even by cantharides, forms no bar to leeching, but is rather favourable to it. In one instance, where a blister had been applied to the throat on account of threatened croup, and where the return of symptoms induced me to employ leeches, they fastened on the denuded surface with unusual eagerness, and the wounds bled profusely.

Did I not fear to trespass too much on your limits, I would willingly make a few remarks on the primary stage of collapse in cases of *Burn*, and on its appropriate treatment. The diffusible stimuli, both internally and externally, seem to offer the only means of relief at this period; but I would beg to ask, if it may not be prudent to employ an antiphlogistic mode of management, and perhaps blood-letting, even before symptoms of reaction have become fairly manifest?

*Glasgow, February* 26, 1823.

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## III.

*Practical Observations.* By JOSEPH SWAN, Member of the Royal College of Surgeons, and Surgeon to the Lincoln County Hospital.

### *Case of a Severe Burn.*

JOSEPH BAILY, æt. 5 years, was burnt by his clothes catching fire about 2, *p. m.*, on the 2d of June 1822. A bucket of cold water was thrown over him, for the purpose of extinguishing the flames, and he was soon after removed to the county hospital. The injury chiefly extended over his arms and legs, and a small portion of his back, but in none of these places was it by any means severe. About six inches of the skin over the epigastrium were slightly burnt. Oil was applied to the injured parts soon after the accident; and on his admission into the hospital, cerate of rosin, to which spirit of turpentine had been added, and fifteen drops of laudanum were given him.

He was restless, and vomited, and in the night became insensible; in which state he continued until 6, *a. m.* of the 4th, when he died. At different times he vomited a blackish matter, and the day before he died, appeared so weak and cold, that a little wine and sago were given him.

*Examination.*—On opening the abdomen, every part appeared sound except the stomach, in the villous coat of which were several spots and stripes like sloughs, extending deep, and quite black. The lungs were sound; but some purple spots appeared behind the pleura, forming the posterior mediastinum. Every other part in the chest was sound. The membranes of the brain were much more vascular than natural, and especially the velum interpositum, and about the pons varolii. There was not more fluid than usual in the ventricles, but there was about an ounce at the foramen magnum.

If any conclusions may be drawn from this case, respecting those who have been burnt, I think opiates ought not to be given, nor any stimulants, but that the patient should be purged; and if coma comes on, and the head is much affected, leeches should be applied to the temples.

There can be no doubt that the diseased appearances of the head and stomach were produced by the irritation of the skin; and, therefore, I think all applications tending to increase this state should be avoided.

### *Cases of Apoplexy.*

Case 1.—Mrs Biscoby, æt. 70, after walking about two hundred yards, ran about twenty more. She immediately complained of being out of breath and faint, and in a very few minutes expired.

A few days before she died, she had been twice very dizzy, and in consequence fell down. She had for a long time been troubled with a difficulty of breathing, and her legs had swelled a little; in every other respect she enjoyed perfect health. She was not extremely corpulent, but was sufficiently fat to show that her body was well nourished. This account I received from her friends.

*Examination.*—On opening the head forty-eight hours after death, all the vessels were found filled with black blood. On cutting into the brain, it was rather softer than is usual at her age, but it had a healthy appearance, though every part of it was gorged with black blood, as in a person who has been hanged. There was rather more fluid than usual in the lateral ventricles. There was some fluid about the base of the brain. The basilar artery had some spots of ossification on it, otherwise every part of the brain and cerebellum, and the part of the medulla spinalis examined, had a perfectly healthy appearance.

On opening the chest, the right lung was perfectly sound, but was distended with air. The left adhered every where to the side of the chest, and it was so soft as to give way on being gently pressed by the fingers, and therefore was not separated without some difficulty. It had not an altered colour, but had a pulpy appearance. There was a small quantity of fluid in the chest.

There was more than an ounce of fluid in the pericardium; but the heart had a healthy appearance, except in one spot, about the size of a sixpence, towards the apex, which was white, as if inflammation had formerly existed there. There were some slight ossifications in the mitral valves. The aorta was very large, and had many patches of ossification on it.

Every part in the abdomen was sound, except that there had been a femoral hernia; and a small portion of the cæcum was thickened, which, in all probability, was the effect of a frequent protrusion.

In this case, there was no appearance of change of structure to account for death; and it is most probable that, if the patient had been bled and purged when she felt the dizziness, her life might have been preserved.

In this case, the blood either could not pass through the lungs, or was not oxygenized by them; so that the accumulation of venous blood in the brain destroyed life.

I conceive that apoplexy depends more frequently on the difficult transmission of blood through the lungs, or from its not being properly oxygenized, than is imagined. A stomach overloaded by wholesome food, or containing a small quantity of indigestible food, deranges all the parts to which the branches of the par vagum are distributed; and therefore the lungs do not perform their functions; in which cases, though bleeding is absolutely required, the greatest quantity of blood may be taken away without affording complete relief; therefore, if a person is seized with apoplexy, and bleeding has not afforded relief, and there is no symptom of paralysis, and it is probable the stomach contains undigested food, it is advisable to give an emetic.

Case 2.—A boy, about fourteen years old, after working hard the whole day, eat a very hearty dinner. He immediately became insensible, and continued so several hours. I bled him, but he was not in the least relieved; I then gave him an emetic. After some time he vomited up what he had eaten, and became immediately sensible.

Case 3.—A gentleman, about fifty-eight years old, was seiz-ed with apoplexy. I took much blood from him, but he was not relieved. I gave him an emetic, which made him eject the remains of his dinner, which he had eaten six hours before, and he was immediately relieved.

Case 4.—A little girl, nearly three years old, could not eat her breakfast as usual; and shortly after complained of being sleepy. In the course of a few hours she became insensible, and was seized with convulsions, which were so severe that I every moment thought she would expire. I was asked to bleed her, but refused doing this, because she appeared so nearly exhausted; and I firmly believed such practice might prove fatal. I gave her, in divided doses, nearly forty grains of powdered ipecacuanha. At length, by irritating the throat with a feather, she vomited a quantity of very thick mucus. The convulsions immediately left her, and she shortly after spoke. In a few hours she became perfectly sensible. She was purged, and had four leeches applied twice to the temples in the course of the day; and a few days after she was quite well.

## IV.

## *Experiments to ascertain the Effects of the Pressure of the Atmosphere, when freely admitted into the Cavities of the Thorax.*

By David Williams, M.D. & M. R. C. S. L.

The following experiments were instituted, from a desire to examine a very important physiological hypothesis advanced by Dr Carson. That gentleman has published a pamphlet,* consisting of three Essays. One, On the Elasticity of the Lungs,—another, On the Vacuity of the Arteries after Death,—and the third, On Lesions of the Lungs. In the second Essay, or that On the Vacuity of the Arteries after Death, he relates two methods that he adopted for killing animals, by admitting air through different parts of the parietes of the chest into both its cavities simultaneously, thereby collapsing the lungs. One method was, by making an opening of about an inch in length, between a pair of the ribs, on each side of the thorax. The other was, by making an opening fit to admit his two fingers, from within the abdomen, through the muscular part of the diaphragm, on each side. Instantaneous death was the result of the latter method, in all his trials. In the former, death was not less certain, though a little more tedious; the life of one animal only (a large dog) was protracted so long as twenty minutes. In his third Essay, or that On Lesions of the Lungs, Dr Carson details an experiment performed on three rabbits, as follows:—An incision was made between two of the ribs, on one side, into the cavity of the chest, and the air was freely admitted (when he concluded, that the lung must have been reduced to a state of collapse), then the wound was allowed to close, and heal. At the distance of five days, a similar opening was made into the cavity on the opposite side, when one out of the three rabbits soon expired, after the second operation. Dr Carson inferred from the result, that it is possible to collapse one of the lungs, and to retain it in that state *ad libitum*, by keeping open the communication between the cavity of the chest and the external air; and further, that upon allowing the opening to close, the lung in a given time will recover its wonted function, thereby rendering it practicable, when *conceived necessary*, to place the opposite lung under the like discipline. Dr Carson has very ingeniously proposed the application of his views to the cure of one of the most frequent and fatal of diseases, *phthisis pulmonalis*, and, in a single instance, he has reduced his hypothesis to practice, by performing the operation upon a consumptive patient in this town.

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* Essays, Physiological and Practical. By James Carson, M. D. Liverpool, 1822.

It will be perhaps rather difficult to reconcile with the above, the results of the following experiments. Indeed, had I not been indulged with the presence of medical gentlemen at several of them, I should have felt some scruple in giving them publicity. The subjects of my experiments were all of them dogs. The four first noticed had their *os humeri* secured to the rings of 56 lb. weights, their hind-legs were well extended and fastened to similar weights, so that they were retained nearly in their natural standing position, which preserved to them, in a great measure, the use of their auxiliary respiratory powers.

1*st Exp.*—An opening, to the full extent of an inch, was made into the left cavity of the chest, between the sixth and seventh ribs, midspace betwixt the spine and sternum. At each inspiration, the lung was partially inflated, and was distinctly seen beneath the orifice, and at a little distance from it. At each expiration, it evidently contracted, and its lower thin margin was thrust outward, through the aperture, with great force and a peculiar noise, caused by the protrusion, and an exit of a portion of the air. The breathing was distressed when the lung protruded; but as soon as the wound was allowed to contract, it became more tranquil. The right cavity was in like manner opened, and the same phenomena were observed. When both apertures were kept wide open, the breathing was very laborious and distressing, which did not arise altogether from the presence of air in the cavities, but principally from the violent protrusion of the inferior margins of the lungs; because the instant the openings were permitted to contract, so as to prevent that accident, respiration became more easy. About ten minutes elapsed after the second opening was made, before the lips of the wounds were brought together. The dog, when let loose, walked, was weak, but breathed easy, would taste nothing until the next morning, when he appeared lively, took his food, and regained his strength daily. The ninth day after the operation, he was hanged, and the trachea tied, to prevent the collapse of the lungs on opening the chest. *Dissection.*—No morbid appearance in the cavities of the chest. The wounds were healed internally, but not externally. The lungs did not reach, by two inches, the inferior part of their cavities; but they were just as much inflated, as if they had not been previously exposed to the atmosphere.

*2d Exp.*—Dr Trail, and Mr Christian and Mr Dawson, surgeons, present. The operation was performed in the same manner as the first; the openings were better than an inch in length; both lungs wounded in the operation. The lungs did not protrude; but the wounded part of the one that was most seriously injured by the knife, was observed to present itself, at each expiration, opposite the aperture. Will a wounded lung protrude under every circumstance that a sound one will? The above medical gentlemen were convinced, that the lungs only partially contracted, and that they were not in a quiescent state; but that respiration, more or less oppressed, according as the openings were expanded, continued uninterruptedly during the experiment. A silver catheter, introduced into the chest, was moved about by the alternate contraction and distension of the lung. The dog was detained, with both apertures wide open, for the space of five minutes, then untied, without bringing the edges of the wounds together. He was rather lively, shook his tail, drew himself upon his belly along the floor, then lay down on one side, and contracted himself, as if to close the openings. Whether it was instinct or accident that induced him to choose that position, it certainly had that effect, thereby enabling him to breathe easier, though his breathing after he was let loose did not appear much distressed. His strength was considerably exhausted. About an hour after, the edges of the wounds were brought together. During the intermediate hour, the external air communicated with the cavities. He refused his food until next morning, when he recovered his appetite, and regained his strength apace. The fifth day after the operation, the dog was hanged. *Dissection.*—The internal edges of the wounds healed; the left lung had a deep plum-coloured circular spot, as large as the circumference of a crown-piece, surrounding the wounded part, which was quite healed. On making an incision into the discoloured portion, it was found gorged with blood, without any apparent disorganization, and appeared to be in a fair way of regaining its natural state. A similar spot, surrounding the wounded part, was observed on the right lung, but smaller; that wound was also healed; no adhesion or extravasation in either cavity. Absorption must have been very rapid, as a considerable effusion of blood into the left cavity had taken place during the operation.

*3d Exp.*—In the presence of Drs Jeffreys, Jardine, Nicholson, and Messrs Blackburn and Jones. An opening of an inch and a half in length, was made between the sixth and seventh ribs, on both sides of the thorax of a middle-sized cur. The air had free ingress, during inspiration, and at each expiration, it rushed out, the lung frequently protruding, when not prevented by the examinations of the above medical gentlemen. The breathing was much oppressed. The animal was kept on the table for five minutes after both the openings were made; when liberated, he walked about, apparently but little affected, —the air passing in and out of the cavities as before. At the expiration of ten minutes, from the time he was let loose, the apertures were fully distended, and retained so, by applying and pressing a finger, at the extremity of each of them, which effectually prevented the ribs from approaching each other. In fact, in my opinion they were fixed. The openings were six times as large as the trachea, as was afterwards ascertained by comparing them. The admission of such a volume of air, *as was expected*, produced death, which took place in less than two minutes. To what extent the auxiliary respiratory organs were obstructed in their action, by the two ribs on each side being kept asunder, I cannot say; but if they were obstructed, and I think it is evident that they were, the death of the animal naturally must have been accelerated.

*4th Exp.*—In the presence of the above gentlemen, a small opening was made into each cavity of the chest, in the intercostal spaces of a bull-dog, and a full-sized clyster-pipe introduced into both apertures, which were retained for half an hour in an oblique position, their internal ends pointing towards the upper part of the thorax, during which time the air freely passed inwards and outwards. The animal was occasionally distressed in his breathing, when, by making a slight struggle and a full inspiration, he was considerably relieved. After regaining his liberty, he seemed but little injured by the operations.

*5th Exp.*—An opening five inches in length was made between the sternum and symphysis pubis, into the cavity of the abdomen. The diaphragm appeared tense, and the action of its fibres was visible, but confined, from the very great pressure required to prevent the protrusion of the intestines, &c. The violent thrusting outwards of the contents of the abdomen was principally, if not entirely, occasioned by the action of the diaphragm; for the force of the protrusion diminished as soon as its action was obstructed on one side of the mediastinum, and ceased when it took place on both sides. With a little difficulty, an opening about an inch in length was made into the left cavity of the chest, through the muscular part of the diaphragm, three inches below its attachment to the ribs. When the air rushed in, the diaphragm on that side became relaxed, and its action not only obstructed, but its irritability to all appearance suspended, a portion of the diaphragm jutted out towards the abdomen, and formed a pouch, with the aperture in its centre. A similar opening was made into the right cavity of the chest, followed by the same effects. An ivory tube, three-tenths of an inch in diameter, was repeatedly introduced into each aperture. The diaphragm seemed to be altogether guided by the action of the contiguous parts, and by the pressure and passage of the air, modified by respiration. At each inspiration it was drawn towards the chest, and expanded by the dilatation of the thorax; but its extension was not sufficient to obliterate the pouches before noticed, which was a strong proof, together with the quiescent state (compared with the previous violent thrusting outward of the contents of the abdomen), of its paralyzed condition. Is it not likely, that, in many wounds penetrating into the cavity of the abdomen, unaccompanied with thrusting outwards of its contents, that the diaphragm is wounded? At each expiration it was pushed towards the abdomen by the pressure and passage of the air from within the cavities of the chest, and the pouches enlarged. The breathing was oppressed, but not so distressing as in the three first, when the apertures were wide open. The external wound was brought together by suture. When the dog was removed from the table, he walked, but tottered a little. He breathed easy; and, three hours after, lapped some milk, which was rather singular, as the two former operated upon would accept of nothing until the following morning. He recovered his strength and liveliness amazingly fast. On the third day after the experiment, he was hanged, together with another dog *not operated upon*, for the purpose of comparing the appearances of their respective lungs. Each had his trachea secured, immediately on being cut down, before the suspending cord was slackened, to prevent the collapse of the lungs on opening the cavity of the chest.

*Post mortem* examination in the presence of Dr Trail, to whom I am greatly indebted for many suggestions in conducting these experiments. No morbid appearance in the abdomen, with the exception of a few adhesions between the liver and peritoneum. The apertures in the diaphragm were closed by a tender film, which very readily gave way to the probe. On opening the chest, the heart was observed once to contract, and the pericardium was perfectly transparent, as remarked by Professor Richerand.† We could perceive very distinctly the ramifications of the coronary vessels. The diaphragm was in its natural position; no adhesions. The lungs, on first exposing them, appeared perfectly smooth and glossy; in a little time they were slightly corrugated, by the effect of the cold in condensing the enclosed air. Not the slightest difference could be perceived either in the expansion or general appearance of the lungs of the two dogs. Their lungs did not extend, by two inches, to the inferior part of their respective cavities, and their bulk was insufficient to fill the remaining part of the bags of the pleuræ.

Pray, what proof is there that the lungs fill the bags of the pleuræ? I must confess, that I am quite sceptical upon that point; and, on the contrary, believe, that, in a healthy state, they never fill them. To prove that the measure we had recourse to was effectual in preventing the air escaping out of the lungs when the chest was opened, at the conclusion we divided the windpipe of each below the knots, when they instantaneously collapsed.

6*th Exp.*—The description supposes the animal to be standing upright on his hind legs. The right cavity of the chest was transfixed with a sharp-pointed penknife, by thrusting it transversely, with a slight degree of obliquity downwards, through the intercostal space, immediately above the upper edge of the eleventh rib, midspace between its head and anterior extremity. The animal was afterwards put to death. *Dissection.*—The instrument had pierced the diaphragm, and had slightly wounded the liver, the lung uninjured. The knife had passed, as near as possible, through the centre of the cavity at that part, and but little short of two inches above its inferior termination. Had the lung extended so low down, it must have been wounded, the penknife being sharp-pointed and pushed in with force.

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† Vide Edinburgh Medical and Surgical Journal, Vol. XIV. page 647.

*7th Exp.*—To remove every doubt with respect to the state of the lungs, when deprived entirely of the influence of the auxiliary respiratory powers, the following experiment was made in the open air. The cartilages of all the true ribs were divided, with the exception of the superior one, close to their juncture with the osseous structure, and the left cavity of the chest laid open its whole length. The diaphragm was punctured. The ribs, and their cartilaginous ends attached to the sternum, were separated and retained wide asunder, so as to expose and to deprive the lung of every assistance from the auxiliary respiratory organs. The lung rested upon the ribs and side of the vertebræ. On exposure, it shrunk considerably, but did not collapse. Its motion (for it was not at rest) might be compared to that of a leech, when it draws up, and again recedes its body, without making any progression, indeed, with both ends fixed. The motion was not that of pulsation, neither was it synchronous with the action of the heart; but it was a slow undulating movement. On closing the gash, and keeping it so for four or five inspirations, then opening it quickly, the lung was found to have increased in bulk. On exposure, it again diminished. To close the scene, the knife was plunged into the heart, with a determination never to perform another experiment on a living animal, to which I was induced by my anxiety to solve an important practical problem.

I believe no one has ever appreciated the power of the lung and its auxiliaries in respiration during life, in resisting and diminishing the pressure of the atmosphere, when admitted into the cavity of the thorax, through apertures in its parietes. That they do possess a considerable power, is beyond a doubt. The oppression of the breathing, and the expansion of the lung, are in an inverse ratio to one another, and can be regulated by adjusting the dimension of the opening into the cavity of the chest. As the aperture increases in its size, the power of expansion of the lung is diminished, while the oppression of the breathing is augmented. But it is by no means true, as alleged, that the motion of the lung entirely ceases on the admission of air into the cavity of the thorax. This doctrine, of the lung collapsing (while the function of the opposite one is unimpaired) on exposure of its external surface to the atmosphere, taught from time immemorial in the schools, I must now consider as erroneous, and feel somewhat surprised that a notion so groundless should have existed for so many ages.

From the foregoing experiments it appears,

1*st*, That a lung will not collapse, from exposure to the atmosphere, as long as respiration is carried on by the opposite one, and the auxiliary powers are not restrained.

2*dly*, That a lung possesses for a time, independently of the influence of the diaphragm and intercostal muscles, if respiration is carried on by the opposite one, a peculiar motive power, the source of which I do not pretend to explain.

3*dly*, That a sound lung soon regains its full power of expansion, when the pressure of the exterior air is removed.

4*thly*, That air freely and uninterruptedly admitted into both cavities of the chest simultaneously, through tubes of a certain caliber, will not collapse the lungs, if the auxiliary respiratory organs are unrestrained.

5*thly*, That air admitted into both the cavities of the chest (of a middle-sized dog) simultaneously, through apertures of an inch and better in length in the intercostal spaces, will not collapse the lungs; provided the animal is allowed, unconfined, the use of his respiratory organs.

6*thly*, That a sound lung never fills the bag of the pleura.

If the last physiological inference is correct, it is highly interesting in a pathological point of view. It enables us to explain how hydrops thoracis, or that species of it called Hydrops Pleuræ, may exist to a certain extent, without being attended with any symptoms indicating the presence of the disease, as related by numerous medical authors. We can also more satisfactorily account, how the lung so frequently escapes injuries when weapons penetrate the cavity of the thorax, and how the extravasation which follows, if not considerable, produces but little derangement. It may also have a practical utility; for it informs the surgeon that the lung descends to a certain point only, so that he need not be afraid of wounding it, should an operation be required below that position.

*Liverpool, 29th April.*

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## V.

### *Case of Over-dose of Tartar Emetic.* By E. W. Duffin, M.D., Surgeon, Edinburgh.

Intending to take an effervescing draught early in the morning, October 26th, 1822, I swallowed, instead of tartaric acid, from 20 to 25 grains of tart. antim., mixed with a solution of supercarb. sodæ. This was owing to the phials being accidentally misplaced. The mistake was instantly perceived, and in about five minutes I felt an uncomfortable sensation of warmth in the epigastric region, soon followed by an acute pain in the forehead, such as is described in *clavus hystericus*, and slight vertigo. Dr Duncan Junior, and Mr Wishart, visited me in about a qurter of an hour after the occurrence of the accident; the pulse was agitated, or such as might occur in any person equally alarmed. I was ordered to drink profusely of luke-warm milk. The symptoms continued as above for nearly 15 minutes longer; a slight degree of moisture then appeared on the forehead and back of the neck.

By this time a quantity of sulphuret of potash was procured; and a tolerably strong solution of this being made, I drank about 6 ounces of it warm, and vomiting was produced in a few seconds, full, but remarkably easy. The matter ejected was, to appearance, like milk mixed with Kermes's mineral. The vomiting continued for the space of about 20 minutes or half an hour, returning after intervals of a few minutes.

The pain in the head, vertigo, and flushing, rather increased in severity. When the stomach appeared to have become sufficiently tranquil, a dose of castor oil was taken in peppermint water; the vomiting however returned, and was accompanied by retching, and ejection of bilious matter.

The burning sensation in the stomach and small intestines was now so far increased as to occasion considerable restlessness; pulse rather weaker than natural, but steadily 88; tongue loaded with a white fur, fauces dry, and a very unpleasant taste in the mouth; disposition to sleep.

At 12 o'clock, *a.m.* had a purgative enema, which operated mildly. The vomiting now ceased. I fell asleep, and wakened in about an hour, with slight vertigo, and sense merely of warmth in the epigastrium. These symptoms became gradually less troublesome, and in the space of perhaps two hours entirely disappeared, leaving me apparently nothing the worse for the accident.

The next day, towards evening, my mouth became tender, the gums bled, and exhibited, in a slight degree, the spongy appearance of scorbutus. This symptom increased for two days, but, upon using an astringent wash, it disappeared gradually.

### *Inferences drawn from the preceding Case.*

1. It is not probable that vomiting would have occurred, unless I had taken the solution of sulphuret of potash.

2. Two reasons may be alleged for the non-occurrence of vomiting; either the state of alarm, which I am much disposed to doubt, or the largeness of the dose, acted as a direct sedative, and thus completely overcame the natural excitability of the stomach.

3. The sensation of heat in the epigastric region was the result of reaction, and not the direct effect of the tartrate of antimony, as it did not occur until some minutes had elapsed.

4. Little of the salt could have been absorbed; as it seems a well established fact, that the absorbents possess an elective power, and do not instantly act upon offensive ingesta. A small portion must, however, necessarily have been taken up by these vessels, if the subsequent affection of the gums depended upon my having taken the poison.

5. The pain in the head might at first be connected with the state of agitation; but afterwards, its increase probably depended upon sympathy with the disordered stomach.

6. The strength of the salt might, in some degree, be diminished by the solution of sup. carb. soda; but this is scarcely probable, when we consider that the salt is already saturated with alkali, being a ternary compound of tartaric acid, oxid of antimony and potash.

7. There is reason to presume that the antimonial preparation was decomposed by the sulphuret of potash; and that it was thus deprived of its acrimony, not only from the appearance of the matter rejected, but as a similar effect may be produced by experiment. Lastly, the disposition to sleep was the result of fatigue occasioned by vomiting.

Curiosity excited me, upon recovery, to consult Orfila's Treatise on Poisons, in order to ascertain to what extent of danger I had been exposed; and at the same time to compare the treatment he approves with that followed in the present instance.

From a careful comparison of his cases, it appears to me, that tartrite of antimony is a medicine much more precarious in its operation and effects than is generally supposed. It appears from his statements, that comparatively moderate doses have been attended with the most urgent symptoms; whilst, in others, immoderate doses have been followed by the most trivial consequences.

In one of his cases, a Jew took about 20 grains; the most alarming symptoms followed; these were alleviated by a decoction of Jusuits' bark, marshmallows, emollient enemata, and opiates.

Twenty-seven grains, he mentions, produced, in a few seconds, violent burning heat in the epigastric region, convulsions, loss of memory, hiccough, temporary delirium, &c.; and a month elapsed before the patient recovered the effects of the medicine.

In another case, 40 grains were followed by a similar, but more severe train of symptoms, and the patient died the following day.

In the first and third instances alluded to, the patients vomited most profusely; in the second, vomiting never occurred. Other symptoms, he remarks, occasionally occur, such as constriction of the pharynx, &c. In page 207, we find an instance of a girl having swallowed, by mistake, ʒvi. Vomiting was almost instantly produced by drinking a large quantity of oil. No bad consequences resulted.

Upon dissection of those who have died from an overdose of tartrate of antimony, the principal morbid appearances, according to Orfila, are detected in the lungs; the stomach and bowels are, however, inflamed. Hence we may infer, the immediate effects of the medicine are not so much to be dreaded as those which arise from its absorption.

Particular directions (page 225) are given to excite vomiting, should it not spontaneously supervene; from which we naturally conclude, Orfila entertained some doubts as to the emetic powers of tartrate of antimony. I am, therefore, strongly inclined to suspect, that when vomiting does not, in due time, occur from a large dose, that the natural excitability of the stomach has been suddenly overcome, and that, instead of stimulant, sedative effects have been produced. I do not deny that vomiting would not occur some time afterwards, when the injured parts had recovered their tone. This, I think, is more than probable. It is not likely absorption will take place until reaction commences; so that, if no vomiting supervene at this period, the greater is the danger.

On perusing the *treatment* approved of by Orfila, I was rather astonished at finding him deprecate, in strong language, that had recourse to in the present case.—" On doit rejeter les terres, les alcalis, les sulfures alcalines, et l'hydrogène sulfuré, medicamens qui dans ce cas sont inefficaces et qui augmentent l'irritation produite par le poison." This seems, however, to be merely an assertion, as he has not proved they are so highly injurious. He recommends decoction of Jesuits' bark (*quinquina*), infusion of tea, infusion of gall-nuts in milk, opium; and upon the accession of inflammation or difficult deglutition, bleeding and antiphlogistic regimen.

It may be asked, What was the condition of the stomach when the medicine was taken? To this I reply, It might be considered in a state of atony, having taken something the preceding evening which had disagreed with me, and excited slight nausea. It was on this account I intended to have taken an effervescing draught.

Some doubt may exist, whether the quantity taken was as much as stated, since it was not weighed. But a similar quantity was afterwards put in the balance, and it weighed more than a scruple: Besides, it was my intention to have guessed as near as possible half a drachm of tart. acid; and as tartrate of antimony is much heavier, an equal bulk of this ought to have weighed much more. Admitting, however, that only 15 grains were taken, it was a very large dose, and severe symptoms were to be apprehended. Indeed it may be doubted, whether the smaller quantity might not have been attended by the most urgent symptoms. In the 11th Number of Dr Johnson's Journal, page 680, fifteen grains exhibited within twenty-four hours are regarded as a very large quantity; but, in the present case, that weight at least was taken at once.

In Italy, I understand, ʒss., nay even ʒi., is no unusual dose in some febrile inflammatory affections. But it is not prescribed with the intention of producing emetic effects, but to act as a sedative. Yet, whatever is the indication, from the obviously precarious nature of the effects of tartrate of antimoy, such hazardous practice cannot be too severely deprecated.

2, *Gayfield Place, Edinburgh.*

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## VI.

## *Case of Laceration in the Fibres of the Gastrocnemius Muscle, treated without Rest or Confinement.* By E. Barlow, M.D. Bath.

Notwithstanding the signal improvements of modern surgery, there are yet particular cases in which the general practice might, perhaps, be modified with advantage. This appears to arise from such cases not occurring to any practitioner with sufficient frequency to afford adequate opportunity for investigating their real nature, or devising the most judicious and effectual treatment. An instance of this kind has lately occurred in my own person; and as I was thus enabled to observe its progress minutely, a brief report of the case may not be uninteresting.

A few months ago, while crossing a street at night-time, I incautiously struck my foot against an elevated flagway. The force of collision was great, and I instantly fell, experiencing the most excruciating pain in the calf of the leg. Swelling of the limb ensued almost immediately, and, ere I reached my own house, the swelling was considerable. Simple treatment was employed for that night; and next morning, having no doubt that a rupture of fibres had taken place in the fleshy belly of the gastrocnemius muscles, being of a full habit, and satisfied that the first object was to prevent inflammation, by reducing plethora and lessening arterial action, I lost twenty-four ounces of blood from the arm, and took a saline purgative. By this means inflammation was obviated, and the progress of serous effusion in the limb arrested. Immersing the leg night and morning in warm water, I found the most soothing local treatment; and on these occasions, gentle friction, facilitated by the use of soap, was grateful. Sensible support was experienced, by bandaging the leg from the foot to the knee every morning with a calico roller, which was removed at night.

In a few days I had recourse to an embrocation composed of soap liniment, camphorated spirit, and spirit of ammonia, which was employed with increased diligence on the sanguineous extravasation becoming more manifest from the absorption of the serous effusion. The ecchymosis was considerable, and appeared first in the lower parts of the limb, to which the extravasated blood had speedily gravitated. I did not confine myself a single day, but pursued my ordinary avocations, by the aid, first of a wheel-chair, and afterwards of a walking stick.

Such was the course of treatment employed, the success of which will appear from the following results. In ten days I was enabled to dismiss my wheel-chair; in a fortnight I relinquished my walking-stick; within three weeks even the bandage was laid aside; and, in a day or two more, I could walk without halting, and descend stairs as before the accident, this latter power being that to which I was latest restored. Although recovery was thus speedy, yet, judging from the intensity of pain, from the rapid swelling and great enlargement of the limb, and from the extensive ecchymosis, I can have no hesitation in pronouncing the accident to have been very severe. The *rationale* of the treatment is so obvious as scarcely to need a comment. By the full blood-letting promptly employed, inflammation was prevented, and serous effusion arrested. Warm bathing allayed pain, and, by the gentle stimulus of moderate heat, excited the absorbents to a more speedy removal of effused serum than would have otherwise taken place. Bandages gave support to the injured muscle; and, by restraining its action while under exertion, saved me from much suffering, and contributed, I have no doubt, to more speedy recovery. Their discontinuance at night was as grateful to my sensations as their application by day. The frictions and embrocations were clearly instrumental in promoting the absorption both of the effused serum and extravasated blood. Such is the case to which I wish to direct attention, chiefly from its affording satisfactory evidence, that, in this species of accident, confinement and absolute rest are not indispensable. So far from it, I believe them to be actually injurious; and, in order to illustrate the subject in this respect, I shall here offer a few observations. A clear conception of the injury sustained appears to me to show manifestly that confinement and absolute rest are not necessary. By the sudden force exerted, certain fibres in the fleshy belly of the muscle became lacerated. These fibres unquestionably contract when torn, leaving a chasm of some extent between the ruptured extremities. As these do not admit of being replaced in apposition, it seems clear that a direct reunion can never take place; and it is nearly certain, that such fibres become afterwards wasted, and gradually decline. If rest be enjoined, then, with a view to their reunion, the end, I have no doubt, is unattainable, and the practice unsupported by sound reasoning. But rest has been pronounced necessary, from an apprehension of the motion of the limb causing fresh laceration of fibres. This fear I believe to be utterly groundless; for, when I reflect on the force required to cause the original rupture, and the violence of concussion by which it is occasioned, I cannot imagine any hazard of fresh laceration from such gentle motion of the limb as a person suffering from this accident is capable of exerting. That such motion did me no injury, I was fully persuaded, from the fact, that, when under no necessity of moving, I frequently felt it a sensible relief to exercise the limb gently, by walking across my room. When such cases are treated by strict confinement, absolute rest, and continued bandaging, the result is far less favourable than what I experienced. By continued inaction, the parts become rigid and unfitted for motion, and recovery is generally slow. To contrast such progress with my more speedy restoration, may afford a useful lesson in practical surgery.

*Bath, December* 1822.

# VII.

## *Suggestions in Surgery.* By JOHN M'GHIE, Surgeon, Royal Navy.

ALTHOUGH it is highly probable, nay, even certain, that there are some diseases which will ever baffle our resources, yet, those being *indetermined*, the most unpromising appearances, or seemingly hopeless symptoms, ought only to be considered as calls for the use of more strenuous exertions to discover the means of affording relief; and it is gratifying to find that they have so operated, particularly of late years, as evinced by the many important improvements which have been recently introduced into the scientific, as well as operative, department of the healing art. Should the following detached observations tend in any degree to arm the practitioner with a greater power of being useful in the maladies to which they refer, my object in requesting a place for them in your valuable Journal will be accomplished.

Surgeons, whose practical knowledge and other professional acquirements entitle their opinions to our respectful consideration, declare, that the several modes of treating permanent strictures in the urethra hitherto employed, will, in a variety of instances, prove either inefficient or injurious. Though numerous plans have been devised for the removal of these complaints, it has never been proposed, so far as I am informed, to perforate the obstruction with a cutting instrument introduced through a cannula. * I believe this might be done with perfect *safety*, and the cure afterwards completed by an elastic gum catheter being kept in the bladder until the induration is removed, or till such time as there is no further risk of its again impeding the flow of urine; and I annex a sketch of a very simple apparatus, with which, I am fully persuaded, this may be effected, and which was suggested to me by a perusal of Mr Arnott's method of introducing the caustic. It consists of a silver cannula, fig. 2., of a full size for the urethra, and eight inches long, with two stilets; one of which, fig. 1., has a silver button affixed to it, which accurately fits the opening into the cannula. The other, fig. 3., is of polished steel, slender, and two inches and a half longer than the cannula, with a probe point at one end, and the other of a flat pyriform shape, to allow the surgeon to take a firm hold of it. On this stilet, three quarters of an inch from its point, is screwed a cutting instrument, fig. 4., one-fourth of an inch in length, of nearly the same diameter as the cannula, and similar in appearance to the head of a four-edged trocar, with concave sides, and an opening through its axis. Between this instrument and the probe point, the stilet is rather smaller than in any other part, and is so tempered that this portion of it possesses a considerable degree of elasticity.

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* These observations, in a more extended form, had been read at a meeting of the "Medical Society of Dumfries," when Mr Howship's excellent work, on the Diseases of the Urinary Organs, was first placed in my hands. I observe it is mentioned in it, that strictures in the urethra may be divided with a fine *spear*-pointed instrument passed through a cannula. Mr H., however, speaks with doubt as to the eventual success of such an operation, and unquestionably with much reason, as there would be the greatest danger of forming a false passage with an instrument of this description.

The situation and extent of the stricture having been ascertained in the usual manner, the cannula, with the button stilet fixed in it, to prevent the urethra being injured, is to be passed down to the obstruction; this stilet is now to be withdrawn, and that with the cutting instrument on it is to be introduced through the cannula; and when the probe point of this arrives at the stricture, *no force* is to be employed to make it enter it, but the passage is to be patiently sought for, the finding of which will be facilitated by the elasticity of this extremity of the stilet. Having passed the point of this into the stricture, it is to be allowed to remain there for a few seconds, rubbing the perinæum gently with the hand during this time, in order to relax any spasm which the irritation of the instrument may have occasioned in the urethra; or perhaps it would be more advisable to prevent this forming, by giving an anodyne enema to the patient three hours prior to operating; the stilet is then to be pushed cautiously and steadily forward, until the obstruction is divided by the trocar; and as the probe point of the former precedes this instrument in the operation, the danger of forming a false passage with it will be completely obviated.

When the stricture embraces the circumference of the urethra, or is extensive and winding, the trocar having the opening through its axis is to be used; but when the induration is confined to one side of this canal, that which has the opening out of its centre, fig. 6., is to be employed, and is to be so introduced, as that the edge of it which is most distant from the stilet, shall be towards that side of the passage in which the stricture is seated, so that this will be part which is cut when the instrument is pushed forward.

The stricture being divided, the trocar is to be withdrawn, and a bougie introduced, in order to learn whether there are any more contractions in the urethra, before that the cannula is retired from it. Should any be found, they are to be treated in the way I have described; and, when every obstruction has been thus removed, a large-sized gum catheter is to be passed into the bladder, and worn there for the space of ten days or a fortnight: After this period, it is only to be introduced at bedtime, and retained in the passage for the night; and this is to be sedulously observed for five or six weeks, when the use of it may be altogether discontinued, as it will then be found to have entirely removed the induration. During the time that the catheter is retained in the bladder, it is to be plugged, excepting when the patient has occasion to make water; and whilst it is constantly worn, he is to be kept in a recumbent position, and an observance of the antiphlogistic regimen is to be strictly enforced.

In cases of retention of urine from an enlargement of the prostate gland, when the catheter cannot be introduced, the bladder is punctured to remove immediate danger; but, as the natural passage for the urine must be restored before the patient can be considered in safety, I presume, that an instrument such as I have delineated, only having a longer cannula suited to the curve of the urethra, and longer stilets, might be employed for dividing the sphincter vesicæ with that part of the gland which compresses it, and *thus* altogether supersede the necessity for any other operation being performed. According as the obstruction is occasioned by a swelling of the whole, or of one lobe only of the gland, so will the direction of the urethra be found to diverge from its natural course; the trocar, therefore, which has the opening out of its axis, is to be used, and to be introduced with the cautions I have stated, when speaking of strictures which occupy one side only of the urethra. I am aware, that, in cases of ischuria from a morbid enlargement of the prostate, the *sonde conique* has been forced through the *substance* of this gland, when the catheter could not be passed into the bladder *per viam naturalem;* but this is obviously so rude, painful, and withal so hazardous an operation, that I conceive it bears no resemblance to that which I propose, unless what may be imagined to arise from its being performed on the same part of the body.

I shall close this communication with calling the attention of my medical brethren to the excision of those species of encysted tumours which have been denominated the Melicerous and Atheromatous. It is well known, that the extirpation of the former, especially, of these kinds of swellings, is often rendered extremely tedious and difficult from the tenuity of the cyst, and the fluidity of its contents. Notwithstanding the utmost caution and adroitness on the part of the surgeon, the sac will at times be opened in dissecting it from the contiguous parts; and, by its collapsing, the completing of the operation is much embarrassed, if not altogether prevented.

To obviate so unpleasant an occurrence, and also to enable the operator to remove the whole of the disease with the greater certainty and expedition, I would advise, whenever there is the least reason to suppose that the foregoing difficulties will be encountered, that the sac should be opened with an abscess lancet; its contents pressed out; and, to clear it completely of these, some tepid water is to be thrown into it with a large syringe. A thin mixture of sulphate of lime (plaster of Paris) and water is then to be injected into the cyst, until it is distended to its former bulk; and, as this injection hardens immediately, it will occasion no delay in the operation: on the contrary, from the contents of the tumour being now a *calcareous concrete*, the detachment of its cyst will be found a very easy matter; the amount of pain, therefore, which would have been suffered in the removing of it, will be lessened; and, what is of still greater importance, there can be no risk of leaving any portion of it behind, to become the germ of a troublesome, and, perhaps, very serious disease.

The syringe which I would recommend to be used, ought to be capable of containing half a pint, and have a long conical mouthpiece, with which the operator is to be careful that he fills the aperture into the cyst, whilst he is throwing in the mixture of the sulphate of lime, so that none of the injection shall escape into the cellular substance external to the sac, and he is not to withdraw the syringe until this hardens, which it will do in the course of a few seconds. It is almost unnecessary to add, that the injection should not be prepared until it is just going to be used; for it becomes solid in a very short time, from the strong affinity which the sulphate of lime has for water.

### *Explanation of the Drawing.*

Fig. 1. A stilet, with a button-head, A, which fits the opening into the cannula, fig. 2. and is fixed in it, when this is going to be introduced, to prevent the urethra being injured by it. The cannula here represented is adapted for conducting instruments to strictures which are seated about the bulb of the urethra. When they are nearer to the glans than this, one which is straight and shorter is to be employed. The parietes of these cannulæ ought to be very thin.

Fig. 3. A stilet, with a cutting instrument, B, screwed on it,

three quarters of an inch from its probe point. The sides of this instrument ought to be *extremely concave;* so that the edges which divide the stricture may be as thin and fine as possible; and that it may have no body but what these will make an easy passage for, through the induration.

Fig. 4. A cutting instrument, the opening through which is not in its axis. It has one principal cutting edge, and two smaller ones, or wings. That part of it has no edge which is nearest to the opening, as the portion of the urethra, over which this glides in the operation, is supposed to be sound. It is used for dividing strictures, which occupy a part only of the circumference of the urethra, and also for making an incision in the prostate gland, when the obstruction is caused by an enlargement of that organ.

The stilet, Fig. 3. unscrews at C, to allow the cutting instruments to be fixed on it.

Figs. 1. 2. and 3. represent the instrument reduced one-half. Figs. 4. 5. and 6. the principal parts of the full size.

*Dumfries, July* 29, 1822.

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## VIII.

## *Case of Rupture of the Internal Coats of an Artery.* By JOHN LIZARS, F. R. S. E. Fellow of the Royal College of Surgeons, of Edinburgh, and Lecturer on Anatomy and Physiology.

> " Four or five remarkable cases of limbs torn off without hemorrhage, are recorded in Periodical and other works on Surgery, but afford us not the least instruction as to the means by which the hemorrhage was prevented, because the artery was not examined."
>
> JONES *on Hemorrhage.*

THE following case, as it illustrates the manner in which nature stems the bleeding of a great vessel, and consequently as it elucidates an important branch of pathology, I beg you will insert in your instructive Journal. The gentleman, who is the subject of it, was travelling on the North-road as an outside passenger of the Mail-coach, when, about five miles from town, the coach was overturned, and his leg got beneath the iron railing. The coach was dragged for a short distance while his limb was in this position, so that it was severely lacerated. The coach being raised, he was lifted inside, and carried four miles onwards to the inn at the end of the first stage, where it was discovered that he had been bleeding freely, and that his leg was dreadfully shattered. When Mr Low, the surgeon of the village arrived, he found the ham of the left leg completely exposed to the bone, and exhibiting the living nerves, blood-vessels and muscles, as if they had been displayed for demonstration. The popliteal artery felt like a cord, had no pulsation, and the leg below, or distad, was cold and lifeless. The skin was ruffled down to the ankle-joint like a stocking. This intelligent surgeon saw at once that there was no alternative but amputation; and as his patient was still shivering from the contusion, a messenger was sent to Edinburgh for further assistance. When I arrived about 5 o'clock in the morning of Sunday the 12th January, the accident having occurred at midnight, I found the patient as above described, suffering excruciating pain; and that reaction had taken place within half an hour. As my opinion coincided with Mr Low's, amputation was immediately performed about four inches above the condyles of the *os femoris;* the patient put to bed and an opiate given. Considerable fever followed, for the removal of which the lancet was twice used; and the day after the operation so profuse a suppuration came on, that on the following day, it was necessary to dress the stump. The discharge continued, appearing to descend from the region of the groin, and was so copious as to bring on hectic symptoms; these, however, soon subsided, by bandaging gently from the groin, applying warm emollient poultices to the stump to subdue irritation, and by the administration of diluted sulphuric acid, and light nourishing diet.

The cancellated surface of the bone was involved in the ulceration, and, after all irritation had subsided, a portion about a fourth of an inch in thickness was removed. The wound soon granulated, and formed an excellent stump. There was no other peculiar feature in the case; the patient got out of bed on the sixth day, was hopping about in the course of a fortnight, and has now returned to his friends.

Previous to examining the amputated limb, I attempted to inject the popliteal artery from the upper or proximal orifice, but little or no injection entered. I then traced the artery, and found the articular branches and those to the heads of the *gastrocnemius externus* muscle with open mouths, except one which had a clot of blood in it. On arriving at the division of the popliteal artery, the anterior tibial, the posterior tibial and fibular branches, were empty and collapsed. The trunk of the popliteal, immediately above its division into posterior tibial and fibular arteries, was then laid open upwards, when the serous and muscular coats were found ruptured across, a portion of

# PLATE

Mr. Lizars's case

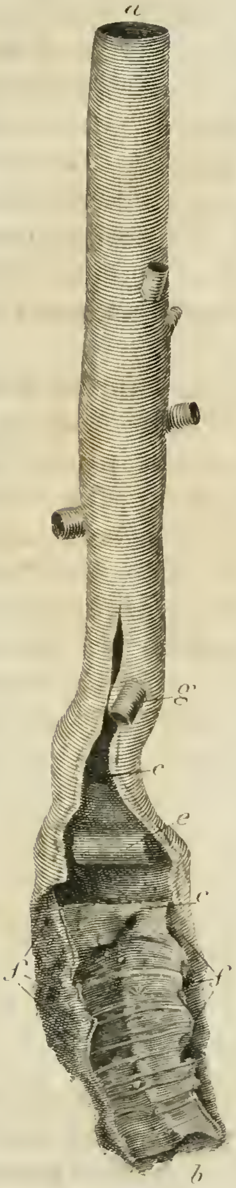
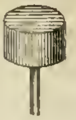


Fig. 7.

Fig. 5.



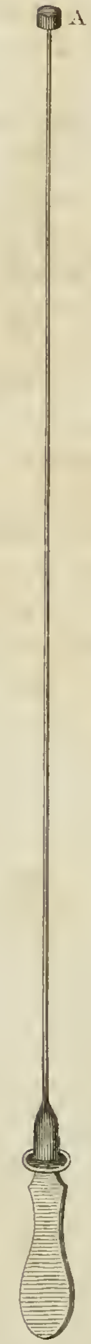


Fig. 1.

Mr. McGhie

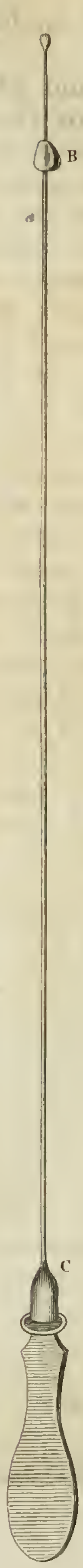


Fig. 3.

Fig. 4.

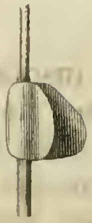
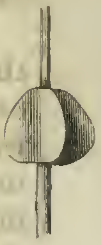


Fig. 6.



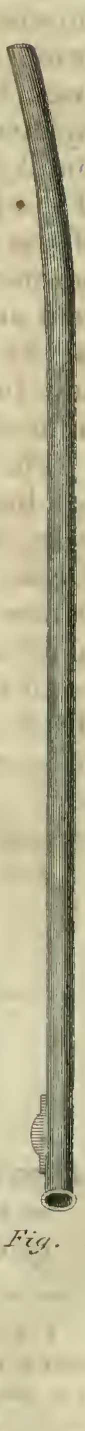


Fig. 2.

them insulated and plugging up the vessel, a clot of blood proximal in the artery, and blood effused in the cellular coat, which had remained comparatively sound and entire. * The integuments were detached downwards to the ancle-joint; the muscles, both on the anterior or patellar, and on the posterior or popliteal aspects of the leg, were distended with effused blood; several parts of the cellular substance were also injected with blood, and a considerable quantity of blood was found in the knee-joint. The ham was exposed to the depth of the popliteal ligament and distad, or downwards to the heads of the *gastrocnemius internus* muscle. The posterior tibial and peroneal nerves were entirely exposed; so were the popliteal vein and artery, which were loosely insulated. Several muscular veins, together with the *saphena minor*, were lacerated; and the heads of the *gastrocnemius externus* were extensively injured.

The effect of the contusion of this artery corroborates what has been advanced by Dessault, Morand and Petit. We have here, first, the rupture of the two internal coats as proved by Dessault, Bichat, Drs Thomson and Jones; secondly, the '*crispation*' of Morand; and, thirdly, the clot of blood both internally and externally, or the '*couvercle*' and '*bouchon*' of Petit, —all contributing to stem the hemorrhage, and prevent instant death. The muscular branch, which had the clot of blood in it, also shows the method which nature adopts to suppress bleeding. There was no coagulated lymph, as the *vasa vasorum* and vessels of the sheath of the artery were destroyed.

*Edinburgh*, 39, *St Andrew's Square*,
20*th March*, 1823.

## IX.

### *Description of the Yellow Fever, as observed during its prevalence in this City (addressed to the Medical and Chirurgical Society of Cadiz, who requested the Memoirs in Reply to the Question*

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* The accompanying drawing exhibits the popliteal artery; *a*, the proximal end, and *b*, the distal end. The artery is laid open from the lower or distal extremity; *c c*, point out where the two internal coats have been ruptured across; *e*, the portion of these coats insulated, curled, and forming a plug; and *f*, the cellular tunic injected with coagulated blood. The upper portion of the artery and the small vessel *g*, were also filled with clotted blood. The preparation is preserved in my museum.

*as to its Nature, Importation, and Contagion.*) By Don Juan Antonio Ferrari, Physician in Xeres de la Frontera. 2d July 1822.

It has been the general belief of almost all the profession, that the yellow fever is a fever of the bilious character, of more or less intensity and acuteness, in proportion to its exciting cause. The variety of the forms and aspects under which it presents itself, has, however, in some measure, discountenanced and altered the idea which medical men had entertained of it, but this particular difference has not been able to change its character; and thus it has been commonly classed as a malignant typhus, or malignant synochus, compounded of synochal and typhous fever.

The symptoms of inflammation, relaxation and debility, which are peculiar to it, have induced some of those who have written on the subject to admit three species distinct from each other, and to employ different plans of cure, the enumeration of which would here be out of place. The majority of practitioners have directed their attention to correct the phlogistic appearances with which it commences, the relaxation which follows, and the debility with which it concludes.

All those who espouse this system, place it in their nosological tables among the *Essential* Fevers. But the difficulties which this view of the subject would involve, taking into view the different anomalies under which it appears, are too great to allow us to consider it essential, as is supposed; for, in that case, it ought to be placed among the primitive fevers, whose fundamental character, according to the partisans of this system, does not admit of the irregularities which are so common in this fever.

Those who think the meaning of the word *Fever* vague and unmeaning, and likely to lead to therapeutical errors, or those who deny the existence of essential fevers, and endeavour to prove that all fevers are secondary, or sympathetic effects of local over-irritation, place the yellow fever among the acute *Phlegmasiæ*, and characterize it as an inflammation more or less violent, of the mucous membrane of the stomach and intestines, including the biliary apparatus, and produced by a putrid miasma of a particular kind.

The symptoms of inflammation, which, from the first, and particularly in the more acute fevers, are observed in the gastric and hepatic system, the progress of the disease, its duration, and the results of those affections which anatomical dissections constantly show, render this last opinion so probable,* that, since the facts which I observed in the epidemic of the preceding year 1821, it appears to me completely demonstrated.

It is equally certain, that the origin of the malignant miasma which produces it, depends on the concurrence or union of certain local causes, animated and put in action by the state of the atmosphere, the temperature of which excites them, particularly in warm countries, or warm situations, such as low, moist, and marshy places; in those where there is any assemblage of animal or vegetable putrid matter, excited by a degree of heat more or less excessive; and those in which the inhabitants breathe an impure air, corrupted by the emanations it receives from the putrescence of stagnant waters, particularly when the heat amounts to, or exceeds 95° Fahrenheit.

This doctrine, then, being admitted, it follows,

1*st*, That atmospheric heat is a necessary condition only in the production of the yellow fever, but not its producing cause, since it is perfectly certain, that, in many warm countries, in which the above mentioned causes of infection do not concur, its ravages have not been felt, nor the disease known. Thus, in Cadiz, in the years 1790, 1800, and 1803—in the first of these years, the thermometer of Fahrenheit rose, on the 21st day of July, to 90; in the second year, on the 20th August, to 87; and, in the third year, on the 7th July, to 89. † If the heat, therefore, in the first and third years, was greater than in the second, how did the yellow fever appear in that year only, and not in the two others?

2*dly*, It follows, that in all those places which do not possess this union of localities, the disease will never spontaneously appear, even though there may be other sources of putrefaction—such as large assemblages of men in situations badly ventilated—animal substances in a state of putrefaction, &c., because the results of these sources of infection not being of the kind which produce this fever, they will occasion others, such as the hospital, army, and prison fevers, which have never yet been confounded with the character of the yellow fever, although they may bear a certain affinity to it, and may exhibit some of its symptoms; just as the want of any one of its symptoms could not be held to vary its essential character.

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* Being determined to follow this plan, I followed, with thirty-six patients who fell under my care in that year, a mode of treatment strictly antiphlogistic. The result was, that only two died. The first, after overcoming the fever, committed some excesses on the fourth day of convalescence, and died on the seventh of his second attack. The second, in consequence of a swelling behind the ear, which did not rise properly, died on the 14th—so that, even supposing these to have fallen victims to the fever, the result would still be, that, under this mode of treatment, the mortality would amount to little more than five in the hundred, while, according to the other, it amounted to fifty-five in the same year.

† Dr Arejula, Treatise on the Yellow Fever, p. 157.

*3dly*, When the existence of this disease is ascertained in places which are free from those local causes necessary for its production, it follows of necessity, that it must have been imported. Let us take this city as an example. Xeres is situated at an elevation * of about 60 feet above the level of the sea. It experienced the yellow fever in the years 1800, 1804, 1819, 1820, and 1821. There are no morasses, marshes, or other source of insalubrity within its boundaries. Whence then did it proceed in the years above mentioned? If it is proved, that heat alone, however excessive, cannot produce it, and if it is also free from those local causes from whence the particular miasma which is its origin, emanates, and that no other source of infection can produce it, as already said, † from whence did it proceed? It is a certain fact, that in all these years, it existed before its appearance in this city, in Cadiz, Malaga, San Fernando, and Puerto Santa Maria. Can any one then doubt of its importation? And if imported, is it, or is not contagious?

In order to decide this question, it will be necessary, according to the anticontagionists, to prove, in the first place, the arrival of some infected person in some particular quarter of the town. And this is precisely what I shall endeavour to demonstrate from the facts which took place in this city, during the five epidemics of the yellow fever, which it has experienced since the year 1800, and which have fallen under my observation.

In all of these the mode of attack has been the same. The disease had appeared first in some of those towns, from which the infected person who introduced the contagion into ours ‡ had removed; and it has uniformly happened, that the fever began in that quarter only where he had lodged; and as that varied with the change of residence on the part of the diseased person, it has happened, that the fever has not appeared in the same part of the town in the five years above referred to. It always attacked particular persons; and the number of infected persons at its commencement, was never observed to be great at one time. At the time of its appearance, or before its progress had extended, there were no sick beyond the quarter in which it was first seen. Confining itself to that for some days, its progress slowly increased, following the direction of the street in which it first appeared, and of the houses adjoining the first infected, without passing to the opposite. Its progress was not interrupted by any obstacle opposed to it, or by any other means which might transmit it in another direction. When it had spread through the city, its propagation increased in proportion to the greater number of communications which the increase of sick occasioned; and during all these periods, it was uniformly observed, that the disease began with units, proceeded by tens, and concluded by hundreds.

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* As it is not easy to perform the geometrical operations necessary for calculating with exactness the height of the city above the level of the sea, the statement given is only an inference from various considerations.

† No one can be so ignorant of the influence of the above mentioned causes in Estremadura, and of the nature of their results, as to confound them with the fever in question.

‡ Among the papers collected by the Municipal Board of Health of this city, which are preserved in its library, will be found the names of the individuals who communicated it, and an account of its progress.

This order of progression so uniform in all the above mentioned epidemics, is a fact so well established in this city, on every occasion in which it has experienced this fever, that it not only demonstrates the truth which I proposed to prove, but it may be extended to all those towns, which have undergone a like visitation, and are placed in similar circumstances: for, supposing that only a determinate source, actuated by a certain degree of heat, can produce the particular miasma which occasions the fever, and that the concurring causes necessary for its production are not to be found in them; if they have it at all, it must be by acquisition.

This induction, it appears to me, destroys the theory of the anticontagionists, in as far as they pretend that the yellow fever, and the diseases which resemble it, are the result of infection, and not of contagion; because, although it is true that the disease can take its rise at first from a centre of putrefaction, *and from nothing else*, yet in those places where no such centre exists, and where the disease is nevertheless found, to what explanation shall we have recourse? I think the affinity between infection and contagion so close, that it seems to me a miserable subterfuge to have recourse to the first, in order to elude the second.

Nor is it less so to multiply, with such fertility, the sources of infection in every quarter in which the fever appears, in order to get rid of its importation and contagion; for, putting out of view, that all are not equally capable of producing the particular miasma which occasions it, which is necessary in this disease as in small-pox, and conceding this power to these supposed sources of infection, why should this power be admitted only in those where the yellow fever appears? and why should the disease not be observed in other places which possess the same sources of infection? *

To deny the existence of contagion, because the mode and medium of communication are unknown, because it is not visible, or because doubts may be entertained whether it be capable of transmission, is certainly a weak argument. The theory of gases, and of the electric and galvanic phenomena, would be placed in the same situation, if the regularity of their results, and their unvariable laws, had not demonstrated what theory could never have inferred from reasoning.

And what else do those facts establish, which have been referred to, and observed in this city, during all the epedemics it has experienced? It would be denying the force of evidence itself, and disbelieving that two and two make four, to doubt, after what has been detailed, that the yellow fever in this city has been imported, and is contagious.

That it proceeds from a poisonous miasma of a particular kind, and that it depends on certain and determinate causes, and no other, is a natural consequence, in all the productions of nature; for if every agent could produce the same effects, these, besides being exceedingly varied and irregular, would be the productions of casualty and chance, rather than of that order and regularity which nature exhibits in all her works. It is generally admitted that the small-pox depend on the contagion of a particular person—why not the yellow fever?

When we consider that its appearance has always been on the seacoast towns connected with America, and the adjoining towns which have a communication with these, and not in those which have no such communication, nor in those towards the centre of the Peninsula, nor in any other, save coast towns, although the latter may be less exposed to heat than the former; if it has been observed, that its prevalence in this city only took place at the period when its importation could be traced; that during the time when the intercourse was less, and the navigation less common, the disease was also less frequent; and if, in this quarter, the patient suffers the disease only once, as in the case of the small-pox, can we doubt of its importation and contagion?

*Lastly*, To deny it, because many persons who have exposed themselves to the risk of infection, have not been attacked, is an argument equally applicable to the case of all contagious diseases; and if it proves nothing against them, it can be of no stronger weight against this. To recur to the person first attacked by the disease, in order to refute its power of communication, and to argue from this, that the disease may spontaneously produce itself in others, as well as in that person, would prove nothing, unless we could demonstratively point out the manner in which the disease made its appearance in the first patient who is pitched upon, as affording a conclusive argument, and unless we could prove also that the same causes which now produce the disease, did not then exist. Things which are not infinite, or rather which do not proceed from eternity, must have a beginning; and that which is assigned to this disease, may equally be assigned to all, without varying in any degree their essential character.

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* The stagnant waters in the Armaryales of Carthagena produced many fevers, and occasioned many disorders, but not the fever in question.

The opinion which considers this disease as contagious when increased and extended, though not in its origin, asserting that it may arise from exhalations, which may continue propagating and extending themselves by contagion, does not appear to me very probable; for although it is certain, that the increase of sick, their union and extension, may augment its force and activity, I do not believe that this increased progress can vary its essence, as the mildest small-pox is as contagious as the most dangerous of the confluent class.

The importation and contagious nature of the yellow fever being admitted, there remain to be noticed its reproduction, and the means of avoiding it.

The reproduction of contagious disorders, although possible, is not frequent, when the contagious poison is not indigenous. Even where it is so, although its production is not difficult, it is not very easy; and the very existence of mankind is a sufficient evidence of this truth.

That of the fever in question, supposing it to be the product of another very distant country, transplanted into this, so different in its locality and temperature, although it may at first retain virulence enough to produce the ravages which we have unfortunately witnessed in the former epidemics, when it has existed among us for some time, becomes weakened, and loses its power, in consequence of its not being in its native soil, and of the non-existence in this country of those causes which promote and preserve its fecundity: So that, in proportion as it is removed from all exciting causes, its force declines; and even when the infection is communicated, it is not severe; and this is the reason, as I think, that this fever does not spread nor communicate in the country.

The vegetable productions of that region from whence the disease emanates, though they are capable of being produced in this by the force of art, lose almost entirely their natural character. The American pine-apple, for instance, when transplanted to this city, reared by the strength of manure and continual stoves, to imitate the temperature of its native country, and shielded from the influence of the atmosphere by glasses, scarcely even preserves its figure, without any of its fragrance, flavour, or sweetness, and ripens late or not at all. Even within the Peninsula, we see that the garden-herbs and fruits, when transplanted to another province, either degenerate rapidly from their original quality and delicacy, or cannot be produced at all. Thus the fruits of Valencia do not thrive in Andalusia; and the potatoes of Malaga will not grow out of that province. These degenerations, so certain and so well known, convince me, that though the poison of the yellow fever may reproduce itself, it requires an assemblage of exciting circumstances so complicated and difficult, that their occurrence must be exceedingly rare.

To insulate the contagion, and to avoid it, are the only modes of escaping it; and although those which the juntas of public health and the magistrates adopted in preference to many others, have not produced the favourable results which were anticipated from them; at the same time, it is necessary to state, that, in order to ensure the success even of the most powerful means, they must be put in action from the first, before the disease has made any progress; for when once it has spread, it is impossible to restrain it.

In the year 1813, while the fever existed in Cadiz, five diseased persons from thence came successively, and on different days, to this city. The vigilance of the internal police, which had been established, denounced them to the Committee of Health the instant of their arrival, who placed them under a seclusion so absolute, that, though they wanted for no necessary assistance, the contagion was insulated, and communicated to none; so that when they all died, the disease died with them, while the town continued to enjoy perfect health that year.

While Cadiz and Bahia were infected with the yellow fever in the year 1819, among the many infected embarcations which accompanied the squadron destined for the South Sea, convoying the large expedition, the ship Fernando VII. commanded by a friend of mine, Don Francisco Grandellana, with a crew of 700 men, the majority of whom had not experienced the disease, escaped the contagion by means of certain regulations which this deserving officer caused to be observed, strictly prohibit-ing all communication with every infected quarter, until the close of the epidemic in the month of December.

The ship Guerrero adopted, three days after, the same precautions as the Fernando VII. with the same success. Not so the ships España, Alexandro, and Numancia, whose crews suffered great loss from neglecting to prohibit communication with infected places, as the others had done.

It has likewise been observed, that those families who have shut themselves up in their houses on the first announcement of the fever, scrupulously avoiding all communication, even though situated in the most infected quarters of the city, and surrounded by diseased families, have escaped any attack of fever, and enjoyed excellent health. *

So, likewise, those who remove before to the country, even though they may entertain some infected person, do not experience the disease, † unless they return before the fever is extinct in the town, in which case they will infallibly fall victims to it.

The result of the above is—

1*st*, That the yellow fever is a *phlegmasia* of the gastric and hepatic system, and not an essential fever.

2*d*, That its cause is a poisonous miasma of a particular kind.

3*d*, That this contagious poison is the effect of a union of certain causes, and no other, excited by a certain degree of heat.

4*th*, That this last is only a necessary condition, but not the exciting cause.

5*th*, That as, in this city, there does not exist, nor has ever existed, that union of circumstances necessary for its production, it is not spontaneous, but has been imported, as often as it has been experienced.

6*th*, That in considering the mode of attack, communication, and propagation, in this city, we are necessarily led to consider it contagious.

7*th*, That although it is certain that contagion, and not heat alone, may reproduce the yellow fever, this reproduction is neither so frequent nor so easy as is supposed.

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* The family of Don Pedro Cossero, Professor of Medicine in this city, who shut themselves up the year before in their house, in a quarter where there were many infected houses, and especially the two adjoining on each side, were not attacked by the fever, and escaped the contagion.

† In the year 1819, Don Antonio Carrero, a merchant of this city, and his family, who had not suffered the fever, flying from the town, removed to a country seat to avoid it, and were not attacked, although Don Thomas Carrero, already infected, went to visit them, and introduced the disease into the house. He himself died there, without infecting any other person.

## X.

## *Cases of Five Individuals in one Family having Small-Pox twice.* By Thomas Barnes, M.D. Physician to the Carlisle Dispensary.

Since the last Report of the Carlisle Dispensary was printed, five cases of small-pox after small-pox have come under my observation; and as vaccination and small-pox have lately excited a great deal of interest, I shall state to you, as briefly as I can, an account of them. They all occurred in a family of the name of Bottams, of Botchergate, Carlisle. The family consists of father, mother, and eight children. Five of the children had small-pox in the summer of 1818, and all of them had the same disease in February last. Jane began first; Margaret took it next; then Mary, Thomas, James, John, William and Ellen, were effected in succession. In all the cases, the eruption was preceded with the usual febrile symptoms in a greater or less degree. Jane, æt. 4, and Margaret, æt. 6, had a great number of pustules, and some of them were confluent. The face swelled, the eyes were nearly closed up, and there was considerable ptyalism. In both, the pustules were at the height on the 10th day; and both had secondary fever, which was accompanied with swelling of the hands and feet. Ellen, æt. 2, had very few pustules, and they gained their full size in about the same time. These three patients were never vaccinated, and never had small-pox before.

The following five patients had small-pox between three and four years ago. Mary, æt. 19, had a copious, but distinct eruption, which maturated about the 8th day; her face swelled, her eyelids were partly closed, and she had a good deal of secondary fever. Thomas, æt. 17, had a smart fever at the commencement, which continued two days, and was followed with a scanty eruption that appeared in successive crops; they maturated on the 5th day, and he returned to his employment of working at the canal on the 7th day. James, æt. 12, had a numerous eruption, which maturated on the 8th day; his face swelled, and he had a slight secondary fever. John, æt. 9, had several pustules scattered over the body, which arrived at the height on the 7th day. William, æt. 14, had very few pustules, and was never confined to bed by the disease; the pustules began to dry up about the 4th day.

For the following account of their first attack of small-pox, I am indebted to their parents, who are sensible, intelligent people. No medical practitioner resided near them at the time, and, being in low circumstances of life, none was sent for, and, of course, they were not seen by any. They took some medicines from the minister of the parish, and all of them recovered. I have no doubt that the account given by the parents is correct; and I am satisfied that they had been affected with small-pox previously to my seeing them; for, on first hearing of the circumstance, I examined their bodies, and observed on different parts of every one of them a great number of pits, which had been left by the disease. On the body of one of them seventy-two pits were counted.

In 1818 they resided in the neighbourhood of Moffat, in Dumfries-shire; and in July of that year, Thomas was exposed to small-pox contagion at Dumfries, and took the disease about a week afterwards. They had then eight children, and five of them, viz. Mary, William, James, John, and Elizabeth, caught the complaint from him. Jane and Margaret escaped, and Ellen has been born since. Elizabeth died nine months ago. Many children in the neighbourhood were afterwards affected with small-pox, which they caught from this family. Mary had a numerous eruption, and was confined to bed between three and four weeks; she had much swelling of her face and salivation; she had a very tedious illness, and recovered with difficulty. William had a great number of pustules, and continued a long time very ill. James had more eruption in the former attack than in the present one; his face swelled, and the eruption continued longer. John had about the same number of pustules in both attacks, but they were longer in acquiring maturity in the first. Thomas had a very severe illness; he had a copious eruption, was confined to bed several weeks, and had a difficult recovery. Elizabeth was the only child that had been vaccinated. The cow-pox were believed to be genuine, and left large scars on her arms. She was ten years old when vaccinated, and thirteen when she had the small-pox. She had a numerous small-pox eruption, and was much pitted afterwards. From the above statement it would appear, that, in all the five cases, the first attack of small-pox was more severe than the second. The parents say the pustules were larger, and continued longer in the first attack; their children were more severely held, and were longer in danger. The eruption, they say, was distinct in all the cases.

Two years ago, the family resided at Springfield, where the small-pox was prevalent. Three children died in an adjoining house, and the two families had frequent intercourse, but none of Bottams's family took the disease.

Ten years ago, Mary, Thomas, William and James, had chicken-pox in a village in Yorkshire, where the complaint prevailed epidemically at the time. The eruption continued about three days, and left no marks behind it. They were not seen by a medical man, but several cases exactly similar occurred at the same time, and were pronounced chicken-pox by medical men.

*Carlisle*, 4*th March*, 1822.

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## XI.

### *Five Cases of Varioloid Disease.* By John Thomas Dennett, Bognor, Surgeon, &c. to H. R. H. the Duchess of Kent.

The notes of the disease, as it appeared in Cases 1st and 5th, previous to my seeing them, which was on the 19th, were furnished, at my request, by Captain M., the father of the children.

Case I.—Miss Maria M., æt. 6½, complained, on the 16th July, of indisposition, attended with fever, with an appearance of red spots under the skin, partially, about her head, face, neck and person; bowels rather relaxed.—17th. The same symptoms somewhat aggravated; restless at night, pulse high, calling for water in the night, and considerable fever.—18th. Disease assumes a decided character; symptoms increased; much fever, and considerable debility; bowels relaxed; sickness at stomach; no appetite, great thirst, general uneasiness and restlessness, bad night, the spots appearing more elevated and more numerous.—19th, morning. Fever; great indisposition and debility. At 7 *p. m.* she was seen by me; the face, body and limbs, covered with an eruption of small spots, many of which are vesicular, distinct, with inflamed bases; vesicles flat, and somewhat depressed in the centre, others having more the appearance of pustules; no nausea, or pain on pressing the epigastrium; little thirst, tongue white, bowels open, skin hot, but not particularly dry. This I considered as the fourth day of the eruption. *Habeat submuriat. hydrarg. gr. iij. statim, et haust. salin. 4tâ quaque horâ.*—20th. (*5th day of the eruption.*) Restless night, rather delirious, calomel operated well; has been sick; does not complain much of thirst; tongue white, with a brown streak in the centre; vesicles more acuminated, and becoming more like pustules. Continue the draughts, and take a solution of cream of tartar for common drink.—21st. (*6th day.*) Restless night; eruption decidedly pustular; eyelids swollen, skin cool and moist, bowels open, little thirst.—22d. (*7th day.*) Passed a better night; eruption on the face dying away; pustules on lower extremities very large and full; two or three vesicles have something of the appearance of the true vaccine, depressed in the centre, the circumference quite turgid with fluid, and overlapping the base.—23d. (*8th day.*) Has had a good night; complains of no indisposition; several of the pustules have acquired a dark spot in the centre, but most of them remain full, and their appearance not altered from yesterday; the pustules on the face quite dried up, and covered with a thin brown scab.—24th. (*9th day.*) Pustules on the body drying up, those on the legs acquiring a dark mark in the centre, a mere line of inflammation round their bases.—26th. (11*th day.*) The pustules, except a few on the legs, entirely dried up, and covered with a smooth dark-brown scab; the crusts have fallen off the face, and left a slight discoloration of the skin underneath, and a few pits; makes no complaint.—28th. (13*th day.*) The remainder of the pustules are dried up, and covered with dark-brown crusts.—30th. (15*th day.*) The crusts still remain on.—1st August. (17*th day.*) They remain as on the 30th.—4th. (20*th day.*) Most of the crusts have fallen off, and have left several pits, which are permanent.

Case II.—Miss F. M., æt. 5½.—19th July. An eruption of minute vesicles, rather numerous on the face and neck, very sparingly scattered on other parts of the body; makes no complaint of indisposition.—20th. (*5th day.*) Restless night; vesicles larger, and considerably inflamed round their bases, confluent on the face, collected into clusters on the neck and arms; skin moderately cool. *Habeat submur. hydrarg. gr. iij.*—21st. (*6th day.*) Much the same as yesterday; the calomel, by mistake, was not given; to be taken this evening.—22d. (*7th day.*) Calomel operated twice; tongue white; not much fever; eruption mostly pustular; a considerable number collected in clusters round the ancles, and on the instep.—23d. (*8th day.*) Rather restless and fretful; the eruption much as yesterday.—24th. (*9th day.*) The eruption on the face drying up; no alteration in the apearance of the eruption on the other parts.—26th. (11*th day.*) Most of the pustules dried up, and covered with a smooth brown scab.—28th. (13*th day.*) Pustules all dried up, and covered with dark brown crusts; some on the face and neck fallen off.—30th. (15*th day.*) The crusts remain on.—1st August. (17*th day.*) The same.—4th. (20*th day.*) Most of the crusts have come off.

Case III.—M. M. æt. 4½.—22d July. (*2d day.*) A few vesicular spots on the face, scalp, and neck; little or no fever.—23d. (*3d day.*) More of the eruption has appeared on the body and limbs; the vesicles are acuminated; makes no complaint; bowels rather lax.—24th. (*4th day.*) No increase of the eruption since yesterday; the apices of the vesicles are covered with an amber-coloured crust, from exudation of the contained fluid.—26th. (*6th day.*) The vesicles are dried up, and covered with dark brown crusts.—28th. (*8th day.*) Some of the crusts have fallen off.

Case IV.—L. M., æt. 2½.—Had been restless and feverish for two or three days previous to the 1st August, on which day a few spots were observed by the nurse, and mistaken for flea-bites. She was seen on the 4th, when an eruption of papulæ were observed on the face, neck and breast, having small vesicles on their apices.—5th. Spots have increased in number since; there are now many on the body, and a few on the lower limbs; they have been much irritated by scratching; the eruption appears to be chiefly vesicular, with a few pustules interspersed. Has passed a fretful, feverish, and restless night.—8th. The eruption has not increased; there are a few pustules, full and prominent, but they have mostly been destroyed.

Case V.—W. M., æt. 8 months.—*July 17th.*—Appeared indisposed, with some degree of fever; refused his usual food; sickness at stomach; small red spots appearing partially under the skin; restless at night; bowels disordered.—18th. Increased indisposition, with fever; no appetite; spots more visible; restless at night; bowels relaxed.—19th. *Morning*, a continuation of the above symptoms. He was seen at 7 *p. m.*; there appeared a few spots on the forehead, face and neck, vesicular.—20th. (*4th day.*) Had a restless night; eruption out on the body and limbs, passing into the pustular state; the bases a good deal inflamed, has been sick, bowels open.—21st.—(*5th day.*) Pustules full and distinct, in other respects as yesterday.—22d. (*6th day.*) No material difference from yesterday.—24th. (*8th day.*) The eruption on the face and neck dying away, those on the legs full and prominent.—26th. (*10th day.*) The pustules dried up, and covered with a smooth brown scab.—1*st August* (*16th day.*) The crusts for the most part fallen off.

The above cases occurred in the family of Captain M—— of the Royal Navy. The first four children had been vaccinated by different medical gentlemen when young; the eldest at six weeks old, the three others at six months, and were reported to have had the disease satisfactorily. The cicatrices on the arms were very faint; on the younger ones, in particular, they could scarcely be discovered without the closest inspection. The infant had not been vaccinated. In the spring they had measles, and were scarcely recovered when they were seized with whooping cough; and, before they were free from the latter, they were attacked with this varioloid disease whilst they were at Brighton, where it is probable they were exposed to the contagion of small-pox, as children believed to have that eruption out on them were seen there by them; but, from the circumstance of Captain M.'s perfect confidence in the protecting influence of vaccination, all suspicion was lulled, and there was not that close attention paid to the occurrence which would otherwise, no doubt, have been afforded. Indeed, to use his own expression, he scarcely thought it within the bounds of possibility for his children to have small-pox; and he came to Bognor without in the slightest degree suspecting the probable nature of the complaint.

From the circumstance of the unprotected infant having so mild a disease, it may admit of a doubt, whether this eruptive disorder owed its origin to small-pox contagion, and many may think that it was aggravated varicella; for, in all the cases that have hitherto occurred, as far as my knowledge extends, the modified disease has produced genuine variola in all persons who had not been vaccinated, or who had not previously gone through small-pox; but, if the hypothesis, that these varieties originate from the *same* contagion, be admitted, it follows, that, in some individuals, from certain peculiarities of constitution or other causes, the disease will have the character of variola, while in others it will put on the appearance of varicella. It may be observed, that there was no secondary fever in any of these cases, except in the eldest child. After I saw them, the children were very slightly indisposed, which perhaps may in some measure be attributed to their being kept a good deal in the open air.

In Case III., the eruption, in its progress and termination, was analogous to varicella. Upon the whole, I am disposed to coincide in opinion with the ingenious Professor Thomson, that small-pox, chicken-pox, and modified small-pox, all proceed from one and the same contagion.

*Bognor, 7th October*, 1822.

## XII.

### *Case of Strangulated Diaphragmatic Hernia.* By JAMES MACFADYEN, Surgeon, Glasgow.

THE following case affords an example of one of the rarest species of hernia that the human body is liable to. It is also not unimportant in itself in a physiological and practical point of view.

J. W. a slater, on Monday (March 24, 1823) towards noon, being thirsty and overheated, drank a considerable quantity of cold water, acidulated with sulphuric acid. He was soon after seized with acute pain, situated at the lower part of the sternum, and extending over the whole of the left side of the thorax. Every thing he took was immediately returned unaltered. The pulse was small, firm, and rather frequent; the respiration confined; and the face pale and anxious. There was no pain in the region of the stomach; and the abdomen, instead of being tense or swollen, seemed as if retracted towards the spine. The patient himself was restless, appearing to labour under an inexpressible sense of uneasiness, and was continually tossing and turning in his bed. These symptoms, taken together, were supposed to indicate a spasmodic affection of the stomach, and the usual remedies were consequently employed.

On the following morning, he was found nearly in the same state; the vomiting, pain of side, and restlessness continuing as formerly. He had, however, one motion in his bowels. The pulse being more frequent than yesterday, though still small, 15 oz. of blood were taken from the arm. An injection was also ordered.

About mid-day, the pain in the left side of the thorax abated, but was succeeded by acute pain in the left lumbar region, stretching over the whole abdomen, which now, for the first time, became sensible to the touch. None of the other symptoms, however, suffered any material alteration. The patient appeared more exhausted than formerly, his respiration was impeded, and the pulse scarcely perceptible. As a repetition of the bleeding appeared improper, a blister was applied to the epigastric region. But towards evening, before it had risen, the patient died.

This man, about a year previous to this attack, had fallen from a considerable height, and received a severe injury of the chest. As far as can be at present learned, there was no fracture of the ribs; but only a severe pain in or above the epigastric region, succeeded by symptoms of inflammation, which confined him to his bed for six weeks. The effects of this accident were never altogether removed. He was always occasionally liable to vomiting, and to pain in the left side of the chest, and particularly in the left shoulder. These symptoms were always aggravated after a full meal. Particular kinds of food, especially acescent, were found to disagree with him. He was able, however, notwithstanding these complaints, to follow his usual employment; and on the morning of the day on which he was attacked, he enjoyed, according to report, his usual health and spirits.

For great part of the above detail, I am indebted to Mr Mackay, surgeon, who saw the case from the commencement.

On the following day, on inspecting the body, the following appearances presented themselves. The abdomen felt hard, yet was not distended or tense; on the contrary, (as before remarked), it rather seemed as if retracted towards the spine. I also remarked, that the left side of the chest was considerably fuller than the right. The body showed little signs of emaciation from long disease.

On exposing the thorax and abdomen, a situation of parts presented itself, such as has been rarely met with in the investigations of the pathologist.

The whole of the left side of the chest was found occupied by the stomach, and the transverse arch of the colon, with the omentum, which also covered the forepart of the right side; so that the thorax and abdomen appeared to constitute one large cavity. The stomach itself was distended to an enormous size, apparently capable of containing a gallon of fluid. It filled up the whole of the left side of the thoracic cavity, the lung of that side being compressed to a very small size. The stomach was of a grey purplish hue externally. On laying it open, it was found about two-thirds filled with a dark-coloured fluid, and the internal coat black, and easily removable by the point of the finger. The colon was empty and contracted, and it, as well as the omentum, unlike the stomach, was of a vivid red colour, with large vessels ramifying upon their surface.

On examination, it was found that they had passed through a considerable aperture, situated about the cordiform tendon of the diaphragm, and not through the œsophageal aperture, as was the case in the most of the cases on record. In this instance, the gullet, after passing into the abdomen, through its own proper foramen, turned back into the thorax. This aperture bore evident traces of having been produced by laceration, from its irregularity and situation; although it was equally evident that some time must have elapsed from the occurrence of the accident. It was found tightly grasping the parts that passed through it, like the neck of the sack in the more common varieties of strangulated hernia.

The peritoneum, throughout, showed some slight traces of inflammation; but there was neither adhesion nor effusion. In the left lumbar region, the ileum was found highly vascular, accounting for the acute pain that had been felt there for some time previous to death. The rest of the viscera appeared perfectly healthy.

We learn, from the cases recorded by Morgagni and others, that protrusion of the abdominal viscera into the thorax may take place from congenital malconformation of the diaphragm, or from its being lacerated by the extremity of a broken rib. That the first could not have been the case in the present instance, we may conclude from the following circumstances; 1*st*, That persons in such a state always die in childhood or early life; 2*d*, That in every such case on record, the deficiency consisted in the œsophageal aperture admitting of dilatation, and the viscera passing through it; and, 3*d*, In this case the opening showed every sign of a recent occurrence. That it could not have been caused by the extremity of a fractured rib, we may conclude from there being no trace of such an accident having ever occurred; and also from the situation of the aperture, which was in the centre of the diaphragm. We can only therefore suppose, that this laceration was produced by excessive muscular contraction; a state which we may readily imagine to have taken place during the occurrence of an accident such as that which this man is said to have experienced. This is rendered more probable by the rent being situated in that part which, to all appearance, is the weakest, and the most likely to yield.

We may safely say, that this man's death was caused by inflammation induced in a manner similar to that which takes place in the more common species of hernia. The symptoms came on immediately after drinking a large quantity of cold water acidulated by sulphuric acid; and as the stomach was found distended to an extraordinary size, partly by fluid, and partly by gas, we have every reason for concluding, that it was the over-distention of this viscus that we are to regard as the cause of the strangulation. Its appearance very much resembled that which is ascribed to that organ when it has fallen into a torpid and over-distended state, ending fatally.

The last circumstance that may be taken notice of, is the vomiting. In this case, this symptom was only observed after the patient had taken any thing, when it was immediately returned. That what he swallowed never reached the stomach, we may conclude from the appearances observed on dissection. Yet it is probable, from the quantity of liquid found in the stomach, that the muscular contraction of the œsophagus succeeded in forcing forwards a portion, at least, of the fluids swallowed. In this case, it is evident that the vomiting took place independent of the action of the muscular fibres of the stomach, or of the contraction of the abdominal muscles and the diaphragm. It is therefore probable that, in vomiting, their contraction only serves to press the contents of the stomach towards the cardiac orifice, where they come within the sphere of the action of the œsophageal fibres, and that it is by them principally that the act of vomiting is performed.

*Glasgow, April 6th,* 1823.

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# MEDICAL EXTRACTS, No. X.

## *Appearance of Scurvy in the Penitentiary at Millbank.*

The number and extent, and, we trust we may add, the value, of the Communications for which we are indebted to our numerous correspondents, have occasioned a long interruption of this department of our Journal. Although the same circumstances continue, we must apologize to our friends for giving the precedence, on the present occasion, to one of the most interesting documents that has ever fallen under our notice; and we are well pleased that it is in our power to communicate to the profession in general the important information which, in its present shape of a Parliamentary paper, is accessible only to a few.

We shall not recapitulate the history of the Penitentiary at Millbank, nor state the purposes for which it was intended, as these are generally known. It will, however, be necessary to premise a few circumstances which are alluded to in the Report, which is to form the principal part of this article, and which are necessary to render it complete.

In a Report of the Committee of the General Penitentiary at Millbank, ordered by the House of Commons, on 3d March 1819, to be printed, we were told that the prison had continued to be very healthy. Out of an average number of 223 prisoners, only one male and two females had died; and in each of these cases, the disease by which the death was occasioned had been contracted before the prisoners came into the Penitentiary; and at the time of making the Report, there was in the Infirmary only six males and eight females.

The prisoners were divided into two classes, according to their behaviour; the second being the more orderly. They were made to rise at half past five in the morning, from Lady-Day to Michaelmas, and at daybreak during the remainder of the year. Half an hour was allowed for dressing and cleaning their persons, which was enforced. They then began to work. At 9 *a. m.* they got their breakfast. At half past nine they resumed their work. At one they dined, and an hour was allowed for dinner, air and exercise. At two they returned to work. At sunset in winter, and at five in spring and autumn, and at six in summer, they discontinued their work. In winter they were immediately locked up; but in the other seasons of the year, an hour was again allowed for air and exercise; and their supper was served to them on being locked up for the night. At this time, 1819, their food was regulated by the following Dietary.

" *Daily*,—1½ lb. of bread, made of such meal as the Committee may from time to time direct, for every male prisoner above the age of 18 years; and 1 lb. for every other prisoner.

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| For *Breakfast* | - - - | 1 pint of hot gruel or porridge. |
| For *Dinner* - | Sundays<br>Tuesdays<br>Thursdays<br>Saturdays | 6 ounces of clods, stickings, or other coarse pieces of beef (without bone, and after boiling), with half a pint of the broth made therefrom.<br>1 lb. of boiled potatoes. |
| | Mondays -<br>Wednesdays<br>Fridays - | 1 quart of broth for the males, and 1 pint for the females, thickened with Scotch barley, rice, potatoes, or peas, with the addition of cabbages, turnips, or other cheap vegetables.<br>1 lb. of boiled potatoes. |
| For *Supper* | - - - | 1 pint of hot gruel or porridge. |

N. B. Prisoners may reserve such part of the provisions previously delivered out, as they please, for their supper.

Salt and pepper as the Committee shall from time to time direct.

The only liquor allowed to prisoners in health (except broth, gruel, or porridge) shall be water.

Prisoners confined to bread and water diet for punishment, shall be allowed such quantity of bread as the surgeon may think necessary."

" Prisoners employed in works of extraordinary labour, or under circumstances which may render it necessary, may be allowed an addition to the quantity of their provisions, by the direction of the Committee.

" *Memorandum.*—Female Prisoners employed in the Washhouse, shall be allowed an addition of ½ lb. of bread daily, and a double allowance of meat on Tuesdays in every week, until the further orders of the Committee.

" The Wardswomen are allowed an addition of ½ lb. bread daily, until further orders."

On the 31st of December 1822, there were 778 prisoners,—452 males and 326 females. On the 17th March 1823, there were 529 males and 327 females, in all, 856. All the male patients of the first class were now employed either in grinding corn, or raising water, twice a day.

The Dietary of the prisoners had been the subject of much animadversion, as being too abundant; and it was certainly more ample than that in most other prisons. A new Dietary was therefore settled upon the best medical opinion, and was introduced on the 4th of July 1822.

" The *Morning*—Three quarters of a pound of Bread, and one pint of Gruel for the Males, and nine ounces of Bread, and three quarters of a pint of Gruel for the Females.

" *Noon*—Three quarters of a Pound of Bread and one Pint of Soup for the Males, and nine ounces of Bread and three quarters of a Pint of Soup for the Females.

" The *Evening*—One pint of Soup for the Males, and three quarters of a pint for the Females.

" The Soup to be made with Ox heads, in lieu of other meat, in the proportion of one Ox head for about 100 Male prisoners, and the same for about 120 Female prisoners; and to be thickened with Vegetables and Peas, or Barley alternately, either weekly or daily, as may be found most convenient.

" The Committee to substitute, at their discretion, Potatoes for Bread, at the rate of 1 lb. of Potatoes for ½ lb. of Bread.

" The only Liquor allowed to Prisoners in health (except Broth or Gruel) shall be Water.

" Prisoners confined to Bread and Water Diet for punishment, shall be allowed such quantity of Bread as the Surgeon may think necessary.

" Prisoners employed in works of extraordinary labour, or under circumstances which may render it necessary, may be allowed an addition to the quantity of their provisions, by the direction of the Committee.

" Wardsmen, and those employed in the kitchen and bakehouse, shall be allowed ½ lb. of bread extra, daily.

" Female prisoners employed in the laundry shall be allowed 1½ lb. of bread daily, with a double allowance of soup at dinner and supper, on the days in which they are employed in washing, viz. Mondays, Tuesdays, and Wednesdays.

" Wardswomen, and those employed in the kitchen, shall be allowed 1½ lb. of bread daily.

" The Committee may diminish the quantity of soup, or the number of days on which soup shall be given, at their discretion, giving such other provisions in lieu thereof as they may think fit. "

During the year 1822, it is stated, that the patients were generally healthy. During the first six months, 14 deaths occurred, or 8 males and 6 females; and, during the last six months, 8 deaths, or 2 males and 6 females; or, in all, 10 males and 12 females, or 22 deaths out of an average of 743 patients; being nearly 3 *per cent*., or 1 in $33\frac{17}{22}$.

Between the 1st January 1823, and 17th March, when the Report was made, 13 deaths had occurred, 2 males in January, 3 males and 3 females towards the latter end of February, and 4 males and 1 female in the first seventeen days of March.

" At the close of 1822, although the deaths had not increased during the last two quarters, there was a much greater number of sick prisoners than usual in the Female Infirmary; the complaints appeared to be in general of such a nature as were not likely to arise from the food of the prisoners, being chiefly colds and pulmonary affections; and it was stated, in the quarterly Report of the health of the prisoners, by the Medical Superintendant, dated on the 10th January 1823, that one only of the female prisoners was then seriously ill. During the first six weeks of the present year, the sickness among the females decreased very considerably, the numbers in the Infirmary being reduced from above sixty, to between thirty and forty; and no death occurred in that part of the prison before the 14th of February. Between the 17th and 20th February, a rapid increase of sickness took place among the males, who had, up to that time, been in general healthy, as well as in the part of the prison occupied by females; and many of the complaints appeared to be such as might not, improbably, be connected with the food of the prisoners, or with a want of sufficient air and exercise. Under these circumstances, it was directed, without waiting for the sanction of the Judges to any new rule for that purpose, that a considerable increase should take place in the time allowed the prisoners for walking in their court-yards; and the Committee also thought it expedient to call in (by a Resolution passed the 28th February, at a Meeting specially summoned for the purpose of taking into consideration the state of the Prison in regard to health) two regular physicians, Dr Roget and Dr Latham junior, in addition to the ordinary medical attendants of the prison, partly with a view of leaving nothing untried for the recovery of the prisoners now labouring under the effects of illness; and partly to ascertain the causes of the illness, in order that the most likely measures might be taken to prevent its recurrence, if it should appear to have arisen in any degree from the diet or discipline of the prison. "

On the 5th of April, Drs Latham and Roget, the physicians consulted, gave in the following Report, which, on account of the valuable facts it records, and the clear and able manner in which they are stated, we reprint without abridgment; nor indeed could it be condensed without injury to its value.

" In conformity with the instructions conveyed to us, in your resolution of the 28th of February last, we have visited the Penitentiary daily, since the 1st of March; we have carefully and repeatedly examined, at different times, the state of health of each individual prisoner; we have taken constant charge of the sick in the infirmaries; we have communicated continually with your medical officers, Mr Hutchison and Mr Pratt, and frequently with the other officers of the establishment; we have made whatever inquiries seemed requisite to obtain correct information concerning the nature and extent, and the origin and progress of the disease lately prevalent in the Penitentiary, the causes which probably contributed to its production, and the means most expedient for its cure, and most likely to prevent its recurrence; and we have agreed upon the following Report.

" *State of the Prison during the Winter.*—From the testimony of the officers of the establishment, and particularly of the matron, it appears, that during the last autumn the general health of the prisoners began visibly to decline. They became pale and languid, and thin and feeble. Those employed in tasks requiring much bodily exertion, were unequal to the same quantity of work as formerly. Those at the mill could grind less corn; those at the pump could raise less water. From time to time several of the laundry-women fainted under their work; and the business of the laundry could only be carried on by continually changing the hands engaged in it. Such was the general state of the prisoners throughout the winter.

" Still, notwithstanding this remarkable depression of the general health, there appeared among them no manifest signs of any peculiar disease. The number of sick received into the infirmaries, did not much exceed the proportion which, in the winters of former years, it had borne to the total number of prisoners; and their disorders were those commonly incident to cold weather. It was not until the beginning of February, that any marks of scurvy were reported by Mr Hutchison, as having been noticed by him on a few individuals in the infirmaries. And here it may be observed, that these marks are, at their first appearance, peculiarly apt to escape discovery, unless the attention be particularly directed towards them; and that they often exist for a long time, entirely unnoticed by the patient himself. Between the 14th of February and the 1st of March, no less than forty-eight prisoners came into the infirmaries, affected chiefly with diarrhœa and dysentery. The diarrhœa and dysentery were of a peculiar kind, and were suspected to have a connexion with the scorbutic disease. At this time, also, all these various affections were found spreading extensively, but in different degrees of severity, throughout the prison.

" *And during the first Week in March.*—On the 28th of February, our assistance was called for; and having learned the facts already detailed, we began our examination of the prison and the infirmaries on the 1st of March. We found the prevailing disease to be the same with that which is known by the name of *Sea Scurvy*, and which is characterized by livid spots, or blotches of the skin, especially on the lower extremities. Conjoined with the scurvy, in almost every case there was diarrhœa or dysentery. There were, indeed, a few instances of scurvy without disorder of the bowels; and moreover, numerous instances occurred of diarrhœa and dysentery, where no marks of scurvy had appeared. But still, whether the scurvy subsisted alone, or the diarrhœa or dysentery subsisted alone, or whether they were conjoined in the same individuals, there was found in all those who suffered from either, or from both, the same constitutional derangement, denoted by a sallow countenance, an impaired digestion, diminished muscular strength, a feeble circulation, various degrees of nervous affection, as tremors, cramps, or spasms, and various degrees of mental despondency.

" *Nature of the prevailing Disease.*—These facts seemed to lead directly to the belief, that the diarrhœa and dysentery and scurvy had their origin in the same morbid state of the constitution. In this belief we were more and more confirmed by further observation; and we soon had the means of determining with certainty, that they, in reality, constituted one and the same disease. We examined, by dissection, the bodies of two prisoners who died dysenteric, and found, in various parts of the intestines, the morbid appearances called, in medical language, *Ecchymoses*; that is, spots of the same kind as those which, on the skin, constitute scurvy. We found, in fact, an absolute scurvy of the bowels, of which the diarrhœa or dysentery was only a symptom and consequence.

" *Its Extent.*—With regard to the extent of this disease, we found more than one half of the whole number of prisoners affected by it, in one or other, or in all its forms; but the proportion was not the same among the prisoners of different sexes, or belonging to different classes. The women were affected much more extensively than the men; and of both men and women, the second class, which is composed of those who have been longest in confinement, was affected in a much larger proportion than the first class, which comprises those who have been more recently imprisoned. Of the women, about two-thirds were ill of the disease; of the men, rather less than one-half. Of the women in the first class, one-half were ill; of those in the second class, five-sevenths. Of the men in the first class, above one-third were ill; of those in the second class, rather more than one-half. The exact numbers are stated in the Table subjoined to this Report.

" *Peculiar Exemptions from the Disease.*—Some striking exemptions require to be noticed. Of the 24 prisoners employed in the kitchens (13 men and 11 women) belonging to the class which had suffered most extensively, all were free from the disease, excepting three, one woman and two men. These three had been promoted to the kitchen within four days. It is proper to add, that the officers and servants of the Establishment, together with their families, residing within the walls of the prison, and amounting to 106 individuals, were universally exempt from the disease.

" *Rise and Progress of the Disease.*—We took some pains to ascertain the period at which the disease in question might be considered as having commenced, and the gradations by which it had reached its present extent and aggravation. It appeared reasonable to assume, that whenever, upon the feeble and drooping condition observed among the prisoners throughout the winter, diarrhœa or dysentery, or scurvy, supervened, then the disease was fully constituted. With respect to the scurvy, it was scarcely possible to assign the exact time at which it commenced, on account of the insidious mode of its attack, and the facility with which it may elude observation on its first appearance. But we have fully satisfied ourselves that there existed, among the female prisoners, a few cases of decided scurvy as early as the month of November. Among the men, we cannot trace any instance of scurvy back to a remoter period than two months. It is certain, however, that it was not until after Christmas that the scurvy had spread very extensively among either sex. About the middle of January, the instances had become numerous among the women, and among the men, about the middle of February; and it continued to increase progressively in both sexes, until the first week in March.

The diarrhœa and dysentery appear, in their origin and progress, to have kept pace with the scorbutic symptoms. Upon inquiry among the prisoners, we found that some of them had been occasionally suffering from diarrhœa before Christmas; but the instances being few, and the cases yielding readily to common remedies, they did not excite any alarm, and were naturally imputed to accidental causes. Under ordinary circumstances, such a conclusion might have been fairly admitted; but considering what the general health of the prisoners then was, and with our knowledge of what has since occurred, we cannot but suspect that, in some of these instances, the diarrhœa belonged to the same disease, of which it has since been found to constitute the principal and most formidable symptom.

" In the course of January, the instances of diarrhœa were too numerous to be attributable to common or accidental causes. But, even then, it had not become matter of general complaint, for it was not attended with much pain, and in most of the sufferers it continued for a short period only, and then ceased; but it renewed its attacks from time to time on the same individual, gradually, though insensibly, impairing his strength. In this manner, through the month of January, many of the prisoners were sustaining a severe injury to their constitution, without being conscious of more than an accidental ailment, and without applying for relief.

" Increasing daily in extent and severity, it at length became matter of complaint; and at the latter end of February, diarrhœa and dysentery constituted a large proportion of the cases in the infirmaries. Three deaths from this disease occurred between the 14th of February and the 1st of March, the day on which we made our first examination of the prison and the infirmaries. In the prison, the disease had reached the extent already mentioned; and in the infirmaries there were 64 patients labouring under the disease, in one or other of its forms.

### " INQUIRY INTO THE CAUSE OF THE DISEASE.

" *Its Independence on the Situation of the Prison.*—In inquiring into the causes of the disease in question, we think it right to state our persuasion, that the situation of the prison has not contributed to its production. First, because, if this had been the case, it is reasonable to suppose that the same disease would have occurred in former years, whereas it has never appeared until the present winter. Secondly, had this been the case, the officers of the prison, being equally obnoxious with the prisoners to any injurious influence of situation, could not have been universally exempt, as it appears they have been, from the same disease. Thirdly, because, if the situation of the prison be injurious, it must be presumed to be so in consequence of marsh miasmata arising in its neighbourhood; yet since its establishment, the prison has been altogether free from those diseases which marsh miasmata confessedly engender. Fourthly, because marsh miasmata always arise during the hot, and never during the cold seasons of the year; and the diseases which they engender belong to the same seasons. Lastly, because, although scurvy and dysentery have undoubtedly been found prevalent in marshy districts, yet when marsh miasmata have produced them, they have been associated with intermittent fevers, and have occurred only at the hot seasons of the year. It may possibly be suspected, that the simple dampness of the situation may have contributed something to the disease. But we can state with confidence, that every part of the prison is singularly dry; and that in no cell or passage, on no floor or ceiling, or wall of the prison, have we found the smallest stain or appearance of moisture.

" *Influence of Diet in its Production.*—Several circumstances respecting the disease in question, which have been already mentioned, seemed to limit the causes of its production to such as could have had their operation exclusively upon the prisoners, and especially at the present season, and now for the first time. One such cause is found, we conceive, in the diet of the prison. During the last eight months, the diet was different from what it had been ever since its establishment. The change which took place in July last, reduced the animal part of the diet almost to nothing. In a soup made of peas or barley, ox heads were boiled, in the proportion of one ox head to 100 male, and one to 220 female prisoners; and we found, upon inquiry, that the meat of one ox head weighed, upon an average, eight pounds, which, being divided among an hundred, allows only an ounce and a quarter for each prisoner. This new diet had been continued until the present time; and to it we mainly ascribe the production of the disease in question.

" *Influence of Cold.*—It does, nevertheless, appear to us, that the diet of the prison has not itself alone been productive of the disease, but that it required the concurrence of other causes, of which the severity of the winter was probably the chief. The origin of the disease has been traced to the commencement of the cold weather, and its progress and increase have kept pace with it. There are, moreover, two circumstances which confirm us in the belief, that diet and cold have been concurrent causes. The sufferers were most numerous in that class of prisoners which were most exposed to the influence of cold, from the lower temperature of the cells in which they pass the night; showing, that where both causes most conspicuously concurred, the disease was most extensively produced. Yet those individuals of that class who, sleeping in the same cells, and exposed to the same low temperature by night, were employed in the kitchen by day, and had access to richer diet, were universally exempt; showing, that where one cause was withdrawn, the other was of itself inadequate to produce the disease.

*Means employed to counteract the Disease.*—Such being the character and extent of the disease in the Penitentiary, and such its most probable causes, we proceeded to adopt those measures for counteracting it, which its own nature, and the opinion we entertained of its origin, seemed to suggest. We ordered an immediate change in the diet of the prison. In place of peas and barley soup for dinner, we substituted a daily allowance of four ounces of flesh meat, and eight ounces of rice daily for each prisoner, and white bread instead of brown; and, as the cheapest and best antiscorbutic article of diet which could be procured at this season of the year, we ordered three oranges for every prisoner daily, one at each meal.

" It is unnecessary to detail the methods of medical treatment employed in the infirmaries.

" *Gradual Decline of the Disease.*—On our examinations of the prison between the 12th and the 19th of March, we found the general aspect of the prisoners visibly improved. The taskmasters informed us, that they were more cheerful, and did more work; and particularly, that those employed at the mill could grind one-third more flour. The scorbutic marks had, in almost every case, begun to decline; and in many of the slighter cases had absolutely disappeared.

" On our general surveys of the prison between the 31st of March and the 4th of April, we could not find more than fifty individuals of both sexes, on whom any marks of scurvy remained; and on the greater number of these, they were so slight as hardly to be detected.

" The diarrhœa and dysentery have, upon the whole, kept pace in their decline with the gradual disappearance of the scorbutic spots. On each of our examinations of the prison, we found them relieved or cured nearly in the same proportion; and, on our last examination, there were not remaining so many as twenty cases of bowel complaints in the whole prison.

" *State of the Infirmaries.*—It is proper to remark, that the diarrhœa and dysentery, being the most formidable part of the disease, was that for which medical treatment was especially required. Therefore, of the prisoners thus affected, we have constantly received as many into the infirmaries as there was room to accommodate, whether their cases were severe or slight. At the period when, as we have stated, the disease was upon the decline, that is, during the last weeks of March, it will be observed, that there was a greater number of prisoners in the infirmaries than at the period when the disease, in all its forms, was at its greatest aggravation and extent, that is, during the first week in March. The truth is, that when we began our attendance, we found only the severer cases of bowel complaints in the infirmaries ; but as soon as we had learned, by the dissection of two patients who died dysenteric, that the disease tended to produce irreparable organic mischief of the intestines, we thought it right to bring as many cases as possible under strict medical treatment ; and moreover, as soon as we had learned, in the course of our observations, the great liability of the diarrhœa and dysentery to return, we thought it right to use the greatest possible vigilance over particular cases, during the period of their convalescence. Hence many, in whom we most strongly suspected this proneness to relapse, were still kept in the infirmaries, after the actual symptoms of their disease had disappeared ; and a convalescent ward, in addition to the ordinary accommodation of the infirmaries, was opened for their benefit. These are the circumstances that are to be borne in mind, in order to reconcile the apparent inconsistency of the number in the infirmaries being greater, at the very time when the disease in the prison was daily and rapidly declining.

" From the 1st of March to the present day, 222 patients have been admitted into the infirmaries, making, with the 110 already there, a total of 332 patients. Of these, eleven have died, six of dysentery, and the remaining five of diseases unconnected with the present disease. At present, the total number of patients in the infirmaries is 101, namely, 64 women and 37 men. Of this number we consider that 36 are convalescent, and exhibit no symptom of disease ; and they are retained in the infirmaries only by way of precaution against relapse : 19 only are still suffering the symptoms of the disease ; and 46 are affected with other complaints.

*Suggestions with regard to Diet.*—It remains with us to fulfil the wishes of the Committee, by suggesting to them some considerations respecting Diet. With regard to the diet of prisoners undergoing punishment for crimes, we presume the object to be, that they should have enough for nourishment and health, and nothing more. How much, and what quality of food will actually suffice for this purpose, can be deduced only from numerous and careful experiments. But no such experiments, as far as we know, have ever been made. There are certainly none upon record, to which we can refer for information. We beg, therefore, that the observations we venture to make, and the recommendations we offer, respecting diet, may be accepted as the result of the best consideration we can give to the subject, in the absence of positive experiments.

" Practically, the main question seems to be, Can animal food be safely excluded from prisons, and particularly from the Penitentiary? We are aware that a large portion of the labouring agricultural population of this country subsists altogether upon vegetable food, and is generally reputed vigorous and healthy; and we admit the justice of the inference, that an exclusively vegetable diet is *generally* wholesome; and we allow, moreover, that to submit those confined in prisons to such a diet, is a justifiable experiment. But still it is merely an experiment; and, considering that every circumstance of the present condition and previous habits of those imprisoned for felonious crimes, is as different as possible from the simple condition and simple habits of an agricultural population, we should not be surprised to find that the experiment generally failed. At the Penitentiary there are, we conceive, peculiar obstacles to its success. These consist chiefly in the long periods of confinement, and the great number of prisoners.

" To prisoners in a house of correction, whose period of confinement is limited to a few months, little hazard would result from an habitually scanty diet. People may be under-nourished for a short time, with impunity; but prisoners who are in the course of a confinement for five, or seven, or ten years (and none are condemned to less in the Penitentiary), cannot safely be subjected to the same system. Many injurious influences will arise in the course of years, which a few months would not produce. There will be changes and inclemencies of seasons to be provided against, and the heavy pressure of moral circumstances; for which, although they cannot be strictly appreciated, large allowances must be made. The great number of prisoners at the Penitentiary, independently of the contingencies to which they are exposed in the course of a long confinement, renders such an experiment peculiarly hazardous. Restriction to a vegetable diet, or to a diet that is considered just sufficient for nourishment and health, requires a constant vigilance over the health of each individual prisoner. Such a vigilance is the only security against the possible evils that may arise. In a prison containing 50 prisoners, a diet even of bread and water may be adopted without hazard, because there the requisite degree of vigilance can be obtained; and the medical superintendant of such a prison would become so familiar with the aspect of individuals, as to see at once the earliest indications of disease in any one of them. But in a prison containing 900 or 1000 prisoners, the requisite degree of vigilance would be impossible; and, for the want of it, a great hazard would be incurred by adopting the same system of diet.

" For these reasons, and especially because the diet of the last eight months, in which the animal matter was reduced almost to nothing, has mainly contributed, as we conceive, to produce the present extensive disease, we recommend that, in future, animal food should make a larger part of the diet at the Penitentiary.

" Upon the subject of Diet, we recommend:

" 1*st*, That half a pound of flesh meat, without bone, be allowed to every prisoner once a week, on Sunday.

" 2*d*, That, in addition, half a pound of flesh meat be allowed to every prisoner once a fortnight, on any day that the Committee may think proper.

" *3d*, That white bread should always be given to the prisoners, that is, bread made of the best wheat flour, and free from all impurities.

" *4th*, That the prisoners should have one meal each day entirely of solid food; that is, if they have gruel for breakfast, and gruel for supper, that their dinner should not be of soups or broth; but that, of whatever vegetable or animal substances it consist, they should be given in a solid form.

" As to the kind of vegetables suitable for the principal meal of the prisoners, a certain latitude must be allowed in regard to those which are most easily procured. All the vegetables in common use are wholesome. Potatoes and rice can be procured at all times, and fortunately they are the most nutritious.

" We recommend, that the present allowance of four ounces of flesh meat, with one orange daily, be continued to every prisoner for a month; that afterwards four ounces of flesh meat be given on alternate days for a fortnight; and that then, if the general state of the prison be healthy, it be put upon the ordinary diet that shall be determined by the Committee.

" In closing our Report, we beg to express our firm conviction, that there is now no obstacle to the entire reestablishment of the healthy state of the Penitentiary. We must nevertheless add, that, for several weeks to come, occasional cases of bowel complaint will probably still be found to arise in the prison; we suggest, therefore, the necessity of great vigilance and frequent inspection, that none of such cases may pass undiscovered; and we recommend, that every case, as soon as it is noticed, be removed to the infirmary, and subjected to the strictest medical treatment. Security against relapse will best be obtained by whatever is calculated to strengthen the constitutions of those who have already suffered, and especially by still employing the means which have hitherto mainly contributed to their recovery. It is with this view that we have recommended the continuance of the present allowance of animal food for another month.

" We have examined the accounts which have been transmitted to us from the Secretary of State's office, of the diet used in different prisons in England, contained in the answers to questions which were sent to the visiting magistrates, on this and other subjects connected with the health of prisoners. But on comparing the different plans of diet detailed in those answers, which have as yet reached us, with the objects and system of the General Penitentiary, we do not conceive that any of them will be at all suitable to that establishment. We have to observe, however, that answers to the above mentioned questions have been received only from seven of the prisons that have been written to for information on these subjects.

" P. M. LATHAM, M. D.
" P. M. ROGET, M. D."

*5th April*, 1823.

TABLE of the Number of Prisoners of different denominations, who were labouring under one or other of the forms of the Scorbutic Disease, in the General Penitentiary, in the beginning of March 1823.

| | March 1823. | Total Number of Prisoners. | Number ill of the Disease. | Equivalent Number per cent. |
|---|---|---|---|---|
| MALES. | First Class - - - - | 309 | 110 | 35 |
| | Second Class - - - - | 222 | 121 | 54 |
| | Confined under 1 year - - | 173* | 40 | 23 |
| | — between 1 and 2 years | 156 | 74 | 47 |
| | — between 2 and 3 years | 165 | 91 | 55 |
| | — between 3 and 4 years | 28 | 19 | 68 |
| | — above 4 years - | 9 | 7 | 78 |
| | Total Males - - | 531 | 231 | 44 |
| FEMALES. | First Class - - - - | 94 | 52 | 55 |
| | Second Class - - - - | 233 | 165 | 71 |
| | Confined under 1 year - - | 37 | 12 | 32 |
| | — between 1 and 2 years | 93 | 65 | 70 |
| | — between 2 and 3 years | 106 | 74 | 70 |
| | — between 3 and 4 years | 68 | 56 | 82 |
| | — above 4 years - | 23 | 10 | 43 |
| | Total Females - | 327 | 217 | 66 |
| OF BOTH SEXES. | First Class - - - - | 403 | 162 | 40 |
| | Second Class - - - - | 455 | 286 | 63 |
| | Total Prisoners - - | 858 | 448 | 52 |

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* Of these, 85 had been received into the Prison since the 1st of January, and therefore had been subject, for a much shorter time, to the influence of the presumed causes of the disease.

TABLE of the Number of Patients in the Infirmaries, on every Day since the 1st of January 1823.

| January. | | | | February. | | | | March. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Days. | Males. | Females. | TOTAL. | Days. | Males. | Females. | TOTAL. | Days. | Males. | Females. | TOTAL. |
| 1 | 17 | 36 | 53 | 1 | 12 | 43 | 50 | 1 | 44 | 66 | 110 |
| 2 | 18 | 48 | 56 | 2 | 15 | 45 | 60 | 2 | 54 | 72 | 126 |
| 3 | 19 | 41 | 60 | 3 | 17 | 46 | 63 | 3 | 59 | 77 | 136 |
| 4 | 20 | 42 | 62 | 4 | 17 | 51 | 68 | 4 | 64 | 81 | 151 |
| 5 | 17 | 45 | 62 | 5 | 20 | 46 | 66 | 5 | 62 | 80 | 142 |
| 6 | 19 | 48 | 67 | 6 | 18 | 50 | 68 | 6 | 47 | 73 | 120 |
| 7 | 22 | 48 | 70 | 7 | 21 | 45 | 66 | 7 | 45 | 64 | 109 |
| 8 | 21 | 59 | 80 | 8 | 24 | 43 | 67 | 8 | 48 | 65 | 113 |
| 9 | 20 | 59 | 79 | 9 | 23 | 47 | 70 | 9 | 45 | 54 | 99 |
| 10 | 20 | 65 | 85 | 10 | 25 | 47 | 72 | 10 | 42 | 58 | 100 |
| 11 | 21 | 70 | 91 | 11 | 21 | 42 | 63 | 11 | 43 | 52 | 95 |
| 12 | 18 | 72 | 90 | 12 | 22 | 38 | 60 | 12 | 45 | 51 | 96 |
| 13 | 19 | 67 | 86 | 13 | 22 | 37 | 59 | 13 | 40 | 50 | 90 |
| 14 | 19 | 65 | 84 | 14 | 21 | 32 | 53 | 14 | 44 | 54 | 98 |
| 15 | 15 | 60 | 75 | 15 | 18 | 44 | 62 | 15 | 42 | 54 | 96 |
| 16 | 17 | 56 | 73 | 16 | 22 | 46 | 68 | 16 | 41 | 59 | 100 |
| 17 | 16 | 45 | 61 | 17 | 22 | 34 | 56 | 17 | 38 | 52 | 90 |
| 18 | 16 | 43 | 59 | 18 | 23 | 35 | 58 | 18 | 43 | 57 | 100 |
| 19 | 16 | 43 | 59 | 19 | 25 | 35 | 60 | 19 | 44 | 60 | 104 |
| 20 | 19 | 43 | 62 | 20 | 26 | 39 | 65 | 20 | 43 | 69 | 112 |
| 21 | 19 | 43 | 62 | 21 | 27 | 43 | 70 | 21 | 42 | 65 | 107 |
| 22 | 21 | 42 | 63 | 22 | 32 | 50 | 82 | 22 | 37 | 59 | 96 |
| 23 | 22 | 46 | 68 | 23 | 33 | 51 | 84 | 23 | 37 | 59 | 96 |
| 24 | 19 | 43 | 62 | 24 | 33 | 51 | 84 | 24 | 32 | 56 | 88 |
| 25 | 17 | 40 | 57 | 25 | 37 | 59 | 96 | 25 | 36 | 57 | 93 |
| 26 | 19 | 43 | 62 | 26 | 42 | 63 | 105 | 26 | 37 | 58 | 95 |
| 27 | 19 | 50 | 69 | 27 | 42 | 61 | 106 | 27 | 39 | 61 | 100 |
| 28 | 18 | 50 | 68 | 28 | 42 | 66 | 108 | 28 | 41 | 63 | 104 |
| 29 | 14 | 45 | 59 | | | | | 29 | 42 | 66 | 108 |
| 30 | 13 | 44 | 57 | | | | | 30 | 40 | 62 | 102 |
| 31 | 11 | 44 | 55 | | | | | 31 | 32 | 55 | 87 |

| April. | | | |
|---|---|---|---|
| 1 | 33 | 59 | 92 |
| 2 | 35 | 59 | 94 |
| 3 | 31 | 60 | 91 |
| 4 | 35 | 62 | 97 |
| 5 | 37 | 64 | 101 |

# XIV.

## *Observations, with Cases of Tic Douloureux, and Rheumatism of the Head, successfully treated by the Carbonate of Soda and the Prussic Acid.* By Thomas Taylor, Member of the Royal College of Surgeons in London. Cricklade, Wilts.

The attention of the Profession has lately been a good deal engaged by that hitherto intractable disease, called Tic Douloureux; and the most successful treatment appears to be that of Mr Hutchinson, with the carbonate of iron; but even that remedy has required a great length of time to overcome the disease, and entirely to remove it. Nevertheless, he has been able to conquer it, and the public are much indebted to him for his perseverance. The few remarks which I have to offer, are elicited by the success I have met with in treating, not only tic douloureux, but another very painful disorder, very nearly allied to it in its pathology, viz. clavus hystericus, or rheumatism of the head. Indeed, I think there is no doubt but that they are frequently mistaken for each other; and many cases published as legitimate cases of tic douloureux, appear to be, on close inspection, severe rheumatic cases, and which are perhaps equally difficult of cure. This is immaterial, provided some are real cases, and the treatment of those equally successful. The first case was entirely cured by the treatment recommended by Mr Abernethy in his Lectures, for some years past. The second and fourth cases, which were treated by the Prussic acid, were certainly rheumatism, and required much longer time to be removed; the second has not returned since the use of the acid. The fourth case, that of a young lady, did not yield so readily as the second. I much wished her to have used the warm bath, in conjunction with the other remedies, as it was of such decided benefit to her brother (case second), by which means she probably would have lost her complaint much earlier, as I consider rheumatism, as well as tic douloureux, to arise from irritability of the whole nervous system, becoming apparently concentrated in one particular part, and kept up and increased by disorders of the digestive organs.

That tic douloureux is a disease, or what Mr Abernethy more properly calls a disorder dependant on irritability or nervous excitement, I think there can be no doubt; and that it should be kept up, or even increased, by disorder of the digestive organs, I think every one must admit. We are all aware of the sympathy which exists between different organs, and also of general sympathy from disorder of any particular organ; we cannot then, surely, be surprised to find a complaint of the nervous system excited and kept up by the disorder of an organ of such universal sympathy as the stomach; nor can we be surprised to find those diseases disappear when the stomach has regained its healthy action. This is sometimes the case in the diseases under consideration, and we need do nothing more than to put it into a good state of health. This would be the first indication in all cases; but, where the disease has existed any length of time, it will require to be acted on by that class of medicines which we know to possess a power of controlling excessive nervous action, and which has generally been called "nervous" medicines, but which I should be more disposed to call sedative medicines. The kinds of sedative medicines in general use, I am well aware, have little or no control over the diseases in question; it therefore behoves us to seek the aid of other medicines, which we are informed possess similar properties. Many new substances have lately been introduced into the practice of medicine with varied success; and we are indebted to Dr Granville for his Translation of Dr Magendie's paper on the use of Prussic Acid, inserted in the Journal of the Royal Institution, as it has greatly called the attention of medical men to that most useful preparation. I have used it, for the last four years, in a great variety of cases, both pulmonary and stomachic, but in none with such decided advantage as in the diseases above mentioned, namely, tic douloureux and rheumatism of the head. In these it appears to possess almost the properties of a specific; indeed I have never seen one instance wherein it has failed, when properly attended to; producing almost immediate relief, and removing entirely the complaint. In two cases only of tic douloureux have I known the disease to return after its use; and each case was at the distance of a twelvemonth. By having recourse again to the medicine, it was immediately and permanently cured, at least to the present time, now nearly two years since the last attack in each case. The following cases, I presume, will satisfactorily show the value of the medicine in this class of disorders; and will, I hope, induce other practitioners to give it a fair trial.

*Cricklade, February* 1823.

Case I.—June 1818. Miss —— has suffered a great deal for some years past with unequivocal symptoms of tic douloureux, affecting principally the *portio dura* of the seventh pair, but in a less degree the whole of the nerves on the left side the face, occurring in violent paroxysms for some minutes, two or three times a day for several weeks, when it leaves her, and she is free from it for some months; when it has again returned, and gône through much the same course. She had been recommended a variety of different medicines, anodynes, blisters, stimulating and sedative liniments, &c. with only trifling benefit. I however gave her hopes of being able to get quite rid of it, and recommended the carbonate of soda in drachm doses, combined with five grains of ext. conii in cinnamon water, twice a day. From the use of this medicine, which acts as a gentle aperient, she found very great benefit; and, by following it up for three weeks, she got quite well. She has found a little return of it once or twice since; but, by having recourse to the medicine, it invariably carries it off in two or three days.

Case II.—Mr —— aged 35, of a spare habit of body, but who had always enjoyed good health previous to the summer of 1818, when he experienced an attack of jaundice. This complaint was soon removed, but it left considerable derangement of the chylopoietic viscera, to which he was not very attentive. On the 10th of November 1818, he had a severe attack of *clavus hystericus* of the left side of the head, the paroxysms occurred periodically every twenty-four hours, and deprived him almost entirely of sleep; he was nervous and irritable, with loss of appetite, and general derangement of health; an emetic was premised, and afterwards the sodæ carbonas in drachm doses, combined with ext. conii gr. v., was taken twice a day. In a few days he was much relieved, and by the end of November the complaint had quite left him. In the following March he had a return of pain, but it was not quite similar to what he felt in his first attack; it occurred in the left side of the head and face, darting through the head in different directions, particularly across the forehead. The pain in the face was more steady; it occurred in paroxysms, particularly in the evening; he could get no sleep, his appetite gone, his bowels costive, slight thirst, tongue covered with brown fur, with quick and small pulse. March 18th, capiat h. s. pil. ex hydr. submuriat. pulv. antim. ā gr. iij. et primo mane haust. aperiens cum inf. sennæ, potassæ tartrat., &c. On the 20th he was better; his bowels had acted well, but skin hot and dry. Cap. h. s. pulv. ipecac. comp. ℈j. aq. ammon. ℥ss. Aq. menth. sat. ℥j. M. ft. haust.; use the pendiluvium in going to bed. 23d, Has perspired a good deal since the draught, and feels better. Has a wish to try the soda draughts, which was complied with; in addition to which, he took gtt. v. sol. arsenicalis bis in die. He continued this medicine a fortnight, but did not experience that relief from it which he before found. At the same time, the state of his bowels was attended to. He has several decayed teeth, to which he thinks his complaint owing; but he has so much irritability of the nervous system, that he cannot command sufficient resolution to have them extracted. He is much better some days, but change of weather invariably makes him worse. He was now advised to make use of the warm bath three times a week, from which he experienced very considerable relief. His purgatives were continued twice a week, and the solution of arsenic twice a day, until the 16th of April, when, although very much better, the pain did not appear at all inclined to leave him, and he was still very irritable and unfit for business. I therefore determined to try what effect the Prussic acid would have on the complaint. A friend going to Bristol procured some for me; but not being quite satisfied as to its mode of preparation, I was very cautious in administering it. I accordingly began with only half a drop, in divided doses, in twenty-four hours, increasing the dose one drop every day, until the eighth, when he took six drops in the same space of time. He no sooner began the medicine, than he found his head better, although he began with such minute doses;—and he improved under its use so rapidly, that it was not necessary to continue it after the eleventh. Not having felt the least pain since the sixth day, he slept well, his appetite returned, and his health appeared completely restored.

Case III.—Mr —— in the early part of the year 1819, was seized with a violent paroxysm of pain, affecting the infra-orbital nerve, whilst eating his dinner, which was so severe, that he could not put a bit more of any thing into his mouth. He happened to be dining with me, and I immediately gave him a drachm of the carbonate of soda, with five grains of ext. conii, in cinnamon water. This draught gave him immediate ease, and he did not find any thing more of it until the following August, when he was again affected in a similar manner. It now continued several days, but never affected him during his other meals. He had recourse to the soda and hemlock, which again relieved him. It returned again, however, the next month, and again was removed by the same means; no external remedies were used. After this, he continued well till the following August (11 months), when he had another attack, which continued several days, before he applied for relief. I had now experienced the good effect of the acid, and immediately gave him two drops three times a day;—he took the medicine only six days when he was quite well, and has had no attack since.

Case IV.—May 22, 1819. Miss —— has had a violent pain of the left side of the head and face, for the last ten days, the pain darting through her head similar to Case II.; but the least cool air blowing on her face, produced a violent paroxysm, which obliged her to keep entirely within, and to have her face constantly covered; has been using fomentations, blisters, &c., without any benefit. This case occuring so soon after the last, I was anxious to see what effect the acid would have, before the complaint could be at all broken in upon by other medicines. I accordingly began giving it in doses of two drops *per diem*, increasing the dose gradually one drop each day, till she took five. The medicine was taken nine days only, when she had lost all pain, and felt completely well. In the following October, she had a return of it, which did not yield so readily. She took the acid a month, and the dose was gradually augmented to twenty-four drops per diem. (This is by much the largest dose I have ever found it necessary to give since.) However, she got completely well, and has had no return whatever of it since. Had she consented to the use of the warm bath, I have no doubt it would have materially assisted the cure.

Case V.—Mrs ——. May 14, 1820, the last two days has been attacked, in the afternoon, with violent paroxysms of pain, affecting principally the left inferior maxillary nerve, although all the nerves on that side the face participate in the affection. The paroxysms were of short duration. She was directed to take the carbonate of soda, with the extractum conii; but this medicine not taking that immediate effect which it usually does, I gave her, on the 15th, two drops of the prussic acid, in divided doses, every twenty-four hours. She took the acid four days, when she was quite relieved. On the 2d of July 1821, she experienced another attack. She took the medicine in the same doses eight days, when she was completely well, and has had no return since.

Case VI.—Mrs C ——, June 18th, 1820, came into the Surgery apparently in the greatest agony. Indeed she paced the room for several minutes, before she could communicate to me the cause of her suffering; and I conjectured some serious accident had happened to some of her children, so great was her distress at the time. When it had a little gone off, she informed me she had a most violent pain at the left side of the lower jaw, which she thought would drive her out of her senses, as she had these attacks every afternoon for nearly the last week, equally as violent as the one she had just experienced. It being confined to the inferior maxillary nerve, she considered it owing to her teeth, which I examined to satisfy her, and found them perfectly sound. I consoled her, however, in promising her relief in a very short time. She being otherwise in good health, I immediately began giving her the prussic acid, in divided doses of six drops in the day, and increasing the dose one drop each day, for four days only, when she was quite well. The medicine was continued a few days, by way of preventing any return, and she has had no attack since.

Case VII.—1821, December. Mrs P —— has had a great deal of pain occasionally on the right side of her face, extending from the ear underneath the eye, and down the neck. It comes on every afternoon, and continues, with slight intermissions, the whole evening. She has had it every day for the last week. She began with five drops of the prussic acid, in divided doses, each day. In less than a week she was quite well. Her greatest dose was six drops only in twenty-four hours. No attack since.

The above cases are the first in rotation, as they occurred, of many others, which have been treated equally successful.

# PART II.

## CRITICAL ANALYSIS.

### I.

1. *Recherches sur une Maladie encore peu connue, qui a reçu le nom de Ramollissement du Cerveau.* Par L. N. Rostan, Médecin de la Salpetrière, &c. A Paris, chez Bechet, Libraire, Place de l'Ecole de Médecine, No. 4. Crevot, Libraire, Rue de l'Ecole de Médecine, No. 11. à 13. 1820.
2. *Recherches Anatomico-Pathologiques sur L'Encephale et ses Dependances.* Par F. Lallemand, Professeur de Clinique Chirurgicale à la Faculté de Médecine de Montpellier, Chirurgien en chef de l'Hopital Civil et Militaire de la même Ville, &c. &c. Paris, de l'Imprimerie de Baudouin, Frères, Rue de Vaugerard, No. 36. 1820–21.

We have been long tempted to think, that the true knowledge of medicine, and its rational investigation as a liberal art, are only in their infancy in France; and the two works mentioned above, are satisfactory proofs of the justice of this opinion. The ignorance, if not the blameable contempt, in which French medical writers have continued, of the doctrines and researches of neighbouring nations, and their extreme nationalism, which prompts them to lavish the most extravagant praises, and render the most devoted homage to every thing which issues from the pen of a countryman, have completely blinded them to the merit of foreign physicians, and have taught them to consider their own systems of pathology and practice as the most perfect and faultless that could be devised. A natural and direct effect of this amiable patriotism, is the subsequent detection of great and innumerable errors which require correction, and bold claims for matchless merit in discovering what they ought to have long known, and in announcing truths, with which the intelligent part of the profession in this country had been long familiar. The nosographical work of Pinel, which they have never ceased to praise, and which, though an acquisition to the country in which it was published, will never acquire great reputation, or be generally perused, where sound pathology is combined with vigorous and efficient practical measures, has been the origin of much good and of some evil. It gave a school, which had not been accustomed to very correct principles of nosological arrangement, a more complete and systematic view of the diseases incident to the human frame, than they had hitherto witnessed; and it had the merit of suggesting some rational views of the influence of local affections, or maladies of particular tissues over the general health of the system. At the same time, however, by teaching that every thing which it inculcated was correct,—that it omitted nothing which was requisite, and was, on the whole, to be viewed as a great oracular authority in nosology, it has enabled the subsequent generation of authors to discover that it had numerous imperfections and omissions, and that there was still ample field for research, correction, and improvement. In the general spirit of inquiry, therefore, by which the French physicians have been actuated, and amidst the magnificent opportunities for professional improvement to which they have access, they have not failed to open their eyes to the defective points of the art of healing; they have commenced to look more at diseases, and less at systems; they have attached themselves to the study of morbid anatomy with as much attention as they had formerly done to that of the healthy body; and, what is still more important, we believe that they are beginning to distinguish the particular instances in which those processes which have been sometimes ignorantly or blindly worshipped under the general name of *Nature*, ought to be resisted or moderated, favoured or checked. In this progressive improvement, however, they have strangely enough either identified themselves with the whole of Europe, or have substituted their own nation as the most respectable representative of that enlightened part of the globe; and have, with characteristic vanity, believed that the state of medicine in France was a good and fair specimen of the condition of that science through the whole world. It would be unjust, indeed, to deny that they have amended the state of French medicine, that they have made some corrections, and achieved some discoveries in relation to themselves; but they have not a little underrated the labours of others; and, in their zeal for innovation or for improvement, they have introduced, as new, several doctrines which have been long admitted and acted upon in this country, but which have not been so generally and systematically published, because, like many other things of less consequence, though of more interest to the majority of mankind, they were unfortunate in not obtaining the eloquence of a consecrated bard. *

The truth of these observations will be shown indifferently well in the history of the disease which forms the subject of the works before us. It is neither newly invented, nor recently observed, nor entirely unknown ; it has certainly been incident to the human race for a very long period ; and is, perhaps, not much more recent than those sudden and generally fatal attacks which superstition and ignorance could explain in no other mode, than by supposing them to proceed from the direct wrath of preternatural powers, or the malignant influence of the heavenly bodies. It must have frequently occurred to the observation of physicians, both in ancient and in later times ; and the want of accurate anatomical knowledge, and of opportunities of careful examination, is a sufficient reason why that, as well as many similar maladies, has been little noticed or obscurely known, till more favourable and auspicious circumstances should occur. Subsequently, when physicians had fairly commenced the practice of examining the human body after death, with the view of discovering the nature of the disorders with which it had been assailed during life, we find some faint traces of pathological knowledge, which, if understood or pursued, might perhaps have led to satisfactory and unequivocal information.

These, however, we admit, were slender and insufficient arguments to prove, that the softening of the brain is not newly introduced among the list of human ailments, and recently marked in the books of the learned. A slight acquaintance with the works of the early observers will show, that their attention had been directed to those obvious changes in the consistence of organs, which dissection occasionally presented, and with which they endeavoured to associate the several events which constituted the disease of the living individual. We find, for example, that Bonetus has recorded, in his *Cemetery* of pathological anatomy, many instances of unnatural softness, flaccidity, or dissolution of the substance of the brain, and that, in all of them, the fatal event was preceded by symptoms which indicated a greater or less affection of the functions and properties usually attributed to that organ. A few of these examples of softened brain had fallen under his own personal observation, but the greater number had occurred to some of his predecessors or contemporaries in the travel of morbid dissection. Of these, we may mention Wepfer and Willis as perhaps the most commonly known, and certainly of authority more than moderate;—both of whom have noticed and recorded instances of disease and death, in which the brain was evidently shown by the symptoms to be the principal, if not the sole seat of the disordered action, and in which, with other morbid changes, a portion, more or less considerable, was found to have lost much of its natural consistence. Still, however, this change had been noticed, chiefly in an adventitious or accessory manner, and very rarely as an organic lesion which was worthy of particular research; and the external signs to which it gave rise, or with which it was attended, seem to have been generally confounded with some of those febrile disorders, which, in being liable to modification by, or combination with, cerebral effusion, render pathological inquiry oftimes unavailing,—or were sometimes added to the irregular accumulation of those comatose maladies, the origin and progress of which have ever embarrassed the systems of medicine, or been accounted too obscure or too variable to be rendered the object of precise investigation.

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* Carent quia vate sacro.

Morgagni, still the first and greatest name in pathological anatomy, is entitled to the merit of having first described, with accuracy, those changes in the consistence of the cerebral substance to which we allude, and which the researches of our authors have more recently and more fully investigated. This eminent pathologist has detailed, in several of his letters on the diseases of the head, various examples of different degrees of change in the consistence of the brain; and the peculiar symptoms with which they were attended, caused him to record some of them with much accuracy, and to indulge in sundry reasonings on the characteristic nature of this modification of cerebral disease. We may refer, for examples, to his 2d, 3d, and 4th letters, in which such changes are recognised and recorded; but his 5th letter, in which he treats of apoplectic symptoms, proceeding neither from extravasated blood nor effused serum, demands particular attention of the pathological physician; and the case detailed in its 6th article, which M. Lallemand has made the first of his *observations*, is remarkable for presenting a morbid change of consistence, which the author, after much reflection, is inclined to consider as a true cerebral abscess. It would be tedious and inconvenient in this place to enumerate all the examples of cerebral disease, in which this eminent anatomist has shown his discrimination and sagacity in thus recognising a morbid change peculiar in its character; and, though always distinct in its symptoms, yet certainly not easily recognised, and of a nature liable to be confounded with other maladies referred to the central nervous organ. It is enough to show, that he has observed this organic lesion; and if he have not investigated all the circumstances relating to its formation and semeiography, that he has at least anticipated more recent observers in the knowledge of its occurrence.

Between the time of Morgagni and that of Doctor Baillie, we have not many correct observations of this organic change. John Hunter had evidently observed one modification of it,—that resulting from blood effused on the surface, or into the substance of the brain. We have the testimony of Doctor Baillie, in his morbid anatomy, that the occurrence of the phenomenon is rare, but not unknown. Portal has adduced, very shortly, several instances of it occurring not only idiopathically, but also as the effect of wounds or external violence inflicted on the head. Dr Thomson, of this place, had in like manner remarked, many years ago, that the brain was liable to become soft, after various injuries of the head; and he had noticed these appearances, not only in his Surgical Lectures on that subject, but in a Memoir read before the Chirurgical Society in 1812, on a particular species of counter fracture.* In 1814, M. Rochoux published a small, but valuable work, entitled Researches on Apoplexy, and containing much curious and interesting information on the pathology of the brain, and the changes of structure to which it was liable. In this treatise, M. Rochoux narrates several cases in which portions of brain had become preternaturally soft, or dissolved, and makes a distinction between it and other affections of the brain. He is the first author, so far as we remember, who uses the term *Ramollissement*, or Softening, in the circumscribed and appropriate sense in which it has been since adopted by the French pathologists.† We must not omit the observations of Dr Abercrombie, who published in the 14th vol. of this Journal, more complete and detailed accounts of the affection, than had hitherto appeared,—nor those observed and described by Dr Duncan, junior.‡ We have indeed good reason to know, that this morbid state of the human brain was neither unknown nor neglected; and at the same time nearly at which M. Rostan was studying its nature in France, Dr Abercrombie and Dr Duncan had directed their attention to it in this country; and though they had not thought of applying to it an epithet so characteristic as that by which it has been since designated in France, it is obvious that they were well acquainted with the organic change in which the disease consists.

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* Med. and Surg. Journal, vol. viii. p. 250.

† Recherches sur l'Apoplexie, par J. A. Rochoux. pp. 88, 101, 130.

‡ Observations on Chronic Inflammation of the Brain. By Dr Abercrombie. Vol. xiv. p. 265. Contributions to Morbid Anatomy, No. II. By Dr Duncan. Vol. xvii. p. 321, &c.

It is not our intention, however, by these observations, to lessen the merit of our authors, or to undervalue the services which they have conferred on our art. We should, on the contrary, be the first to express our regret, if we thought it possible that any reflections of this nature should leave an interesting pathological subject in the same imperfect condition in which it is not unfrequently left, by the first inquirers; and it ought to be deemed beneficial to the interests of the art, that no subject be considered either too well known, or too simple to demand further investigation. Although, therefore, the morbid change of the brain to which we have already alluded, must have been known to all who availed themselves of the ordinary means of information, it is quite possible that some circumstances of its history, of its causes, or of its peculiarities, may still be sufficiently unknown or uncertain, to warrant more full and systematic inquiry than has been hitherto attempted. The merit of MM. Rostan and Lallemand, consists not so much in discovering that the brain was liable to the state which they have distinguished, by the denomination of 'Ramollissement,' or Softening, as in observing and watching carefully the manner in which it originates, the symptoms by which it is accompanied, in examining the nature of the change in consistence, investigating the causes and circumstances which tend to produce it, and in distinguishing it both in anatomical and in semeiographical characters, from those symptomatic affections of locomotion and sensation with which it is too liable to be confounded. It is indeed much to be feared, that previous to the time when M. Rostan called the attention of his countrymen to the appropriate character of this malady, persons affected with it were believed to labour under *adynamic* or *ataxic* fevers, modified, masked, or combined with cerebral determination, nervous commotion, or comatose symptoms; and we are certain that many obscure and complex affections, were daily treated according to the established principles of the day, without ever being connected, in the mind of the practitioner, with any local change in the structure of the brain. We do not assert that this is peculiar to France, or cannot occur in our own country; but we believe that an impartial judge, who looked to the respective modes in which physicians of each nation contemplate the phenomena and processes of disease, would find no difficulty in concluding, that it was much more likely to occur in the former country than in the latter. While, therefore, we shall not refuse to be benefited by the researches of our foreign brethren, we will not forget, on the present occasion, to congratulate them on the prospect which they have opened, of rendering their nosological and didactic medicine much more perfect; and we trust that their example will not fail to exercise a favourable influence on the opinions and practice of their countrymen. When such is the state of circumstances regarding this malady, it may be justly asked, why it has so long evaded the more accurate scrutiny of the anatomical inquirers of the present day, how it should have been so long confounded with other similar affections, and what peculiar circumstances have reserved the merit of its more complete discrimination to M. Rostan?—Must we ascribe it to the peculiarities of French practice, which is rarely sufficiently active or energetic to control morbid action, or modify the appearances produced; or to the sagacity and industrious diligence of the observer, who is qualified to convert to useful purposes the opportunities which accident may throw in his way? It has been remarked, that great discoveries in science have been frequently suggested, by trivial and ordinary occurrences, or have been the offspring of pure accident; but it must not be forgotten, that such contingency never occurs to ordinary or indolent observers; and trivial events might take place daily and repeatedly, without leading to any unwonted inference, unless they are presented to a mind of a reflecting and inquisitive character.

About eleven years ago, a woman, with all the symptoms of an apoplectic attack, was brought to the Infirmary of the Salpetrière, where M. Rostan was attending as an internal or medical pupil. The physician in attendance determined the disease to depend on an effusion of blood; and his habitual accuracy was so remarkable, that the diagnosis was implicitly believed. The woman died; but examination showed M. Rostan, instead of the expected bloody effusion, a considerable softening (*ramollissement*) of a part of the cerebral substance. As this alteration was entirely new to our author, and probably to many others concerned, it attracted particular attention; and, when he spoke of it to several well-informed physicians, some very rationally stated their opinion, that the change in consistence could not have occurred instantaneously; others ascribed it to a nervous or serous apoplexy; while a few asserted that it was the result of temperature, or of the forcible efforts employed in breaking the cranium. M. Rostan, who was dissatisfied with these explanations, and not discouraged by the objections, which indeed were not difficult to be refuted, looked on the diminished consistence as of a morbid nature; and, as opportunities of collecting information were not wanting to an inquirer of moderate industry, he soon found several for confirming his suspicions. One of these was very characteristic. A woman, much advanced in life, was brought, after losing her faculties, in a complete state of hemiplegia, to the Salpetrière. The case was accurately recorded. The state of perception, sensibility, contractility, &c., and the degree of stupor, were noted with precision. M. Rostan, like most others, at first set down this as a case of apoplexy; but he had also remarked, that when the patient was asked where she felt uneasy, she directed the unaffected hand slowly, and with difficulty, to the head; a symptom, the nature and value of which M. Rostan's subsequent researches enabled him to discover. This patient also was cut off by her disease; and fifty pupils of the hospital were witnesses of an entire lobe of the brain being softened, and tinged with a rose colour. His views of the nature of this softened state of the brain being thus confirmed or illustrated, M. Rostan continued his researches; and subsequent cases, neither few nor rare, have occurred, to throw additional light on the partial glimpses which he had hitherto obtained of this affection, and to enable him to enlarge or complete his ideas of its origin and nature. The difficulties which he has thus encountered, and the labours which he found it requisite to undertake, have convinced him of the service, which might be rendered to the profession, by acquainting them with the result of his researches; and the work before us is intended to accomplish this object.

The essays of which it consists, which were originally published in the *Journal de Médicine*, * deserve little or no praise as literary performances; but, as plain unpretending narratives of facts and observations, we are certain they deserve, and we doubt not will obtain, the closest attention of the pathologist and physician. The work is short, and therefore easily perused; and if the cases are not so systematically arranged as to facilitate greatly the communication of the information conveyed in them, this will only enable the reader to study them with less bias, and form his own opinion on the nature and causes of the peculiar lesion of which they afford examples. It consists of eleven chapters, of which the first gives a general description of the disease in its regular or distinct form, and presents, in confirmation of the accuracy of this description, seven cases, with dissections, very correctly and minutely detailed. Besides the regular and distinct form of the simple malady, M. Rostan has noticed one which is not often preceded or attended by obvious symptoms, and which he therefore has named the anomalous form. This is considered and illustrated by eight other cases in the second chapter. When the disease is complicated with other forms of morbid action, a third peculiarity is produced, which is sufficiently important, in our author's estimation, to demand the attention of the physician. Its examination occupies the third chapter, which also presents us with various examples of those complications which have occurred most frequently to the observation of M. Rostan. From the fourth to the seventh chapter inclusive, the subject is treated in a manner more general, and our author communicates a great proportion of interesting information on the several subjects of the duration and frequency of the disease, the pathological alterations in which it consists, the nature of the action which produces these pathological changes, the termination and prognosis of the disease, and finally, the remote causes on which its formation and existence depend. The tenth chapter, which treats of the diagnostic signs, is the longest of the whole, and consists of two parts; the first, containing a review and estimation of the individual symptoms which characterize the several stages or periods of the disease; and a second part, denominated the *differential*, or, as we should term it, the *proper or discriminative diagnostic*, in which the disease is contrasted with others with which it is particularly liable to be confounded, and in which the means are examined by which this error may be avoided. This part of the subject is also illustrated with several appropriate cases; for example, of bloody congestion, serous congestion or hydrocephalus, inflammation of the arachnoid membrane (*arachnitis*), suppuration of that membrane, apoplexy, nervous, sanguine, or otherwise; and, lastly, of various chronic organic changes, incident to the brain or its appendages, as cancer, fungous tumours of the hard membrane (*dura mater*), the hydatoid productions denominated acephalocysts, cerebral tubercles, osseous tumours, and, lastly, those general affections of the system which are ordinarily reputed nervous, but which depend on a peculiar, probably unknown state of the brain, or its circulation. The last Chapter contains some observations on the most rational treatment of this disease, both prophylactic and sanative; and is concluded with the usual profession, that the work has been written, and its subject investigated, according to the principles of the true Baconian philosophy.

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* Nouveau Journal de Médicine, Tom. IX. Sept. Oct. Nov. 1820.

With the same subject to treat, the work of M. Lallemand is considerably different. Its general arrangement has been much influenced by the pathological opinions of the author, which, without being very hypothetical, are somewhat different from those of M. Rostan. We learn from the Preface of M. Lallemand, that he had devoted himself for a considerable time to the investigation of the pathology of the brain; and that, after much experience and meditation, he had fixed on the following as the most natural arrangement.

I. *Affections of the Brain, simple, or exempt as much as possible from complication.*

1st, Violent congestion, hæmorrhagic effort without effusion (*coup de sang*); with effusion of blood, (*apoplexia*).
2d. Inflammation of the brain.
    1. First *Period*. Softening, with vascular injection, or infiltration or effusion of blood.—2. Second *Period*. Softening, with infiltration of purulent matter, or incipient suppuration.—3. Third *Period*. Cerebral abscess.
3d, Chronic affections, encysted abscess, scrofulous tubercles, fibrous, osseous, scirrhous, cancerous tumours, hydatids, foreign bodies.

II. *Affections of the Arachnoid Membrane.*

1st, Violent congestion, bloody, blood-coloured, or serous exhalation.
2d, Acute inflammation in different degrees; suppuration; turbid, milky or jelly-like serosity.
3d, Chronic inflammation.
4th, Thickening of the arachnoid membrane, increase of its consistence, diminution of its transparency, growth of granulations at its surface.
5th, Acute hydrocephalus.
6th, Chronic hydrocephalus.

III. *Affections of the Brain and of the Arachnoid Membrane, mutually complicated.*

IV. *Diseases of the Spinal Chord, and of its Membranes.*

Extended as is this view of cerebral maladies, our author deems it incomplete, unless it comprehend also the influence which they exercise on the organs of the chest and abdomen, and the reciprocal effect which results to the brain and its appendages, in consequence of organic changes within either of these cavities. It will be easily concluded, that so many subjects, requiring so much elaborate investigation and industrious detail, could not be contained in the compass of a work so moderate in size as the present: and, indeed, our author has not advanced further than the conclusion of the third period of his first subject. In imitation of Morgagni, he has adopted the epistolary form of writing; and the three Letters of which the present volume consists, treat respectively of the three stages of cerebral inflammation, which, as our readers will perceive, are associated by M. Lallemand in different circumstances, with varied forms of softened brain. It will be thus observed, that our author has not commenced the publication of his researches with the first subject of his nosological table, but has made the present volume treat of a subject less known, as he conceives, but not less interesting or instructive. A glance at our author's general division of the diseases of the brain and appendages, will show that it is founded on synthetical principles, and modified by the pathological notions which he has formed of the nature of each, and of their mutual relation and connexion. The particular arrangement of that part of his subject which is now under examination, is, on the contrary, analytic and inductive. Influenced chiefly by the desire of commencing with the more simple, and gradually advancing to the more complicated forms of cerebral disease, our author has, however, first narrated his individual histories of disease, and, commenting on each and on the pathological facts or doctrines thus unfolded, he terminates by general inferences and observations, and thus finally leads his reader to perceive the conclusions to be formed, and to admit the pathological principles which it is his object to establish.

The subject of M. Lallemand's First Letter is, *softening accompanied with vascular injection, infiltration, or effusion of blood, or peculiar colouring of the affected part;* which our author conceives to be the simplest and incipient form of the morbid change of the cerebral substance. The whole letter is divided into twenty-two numbers, of various length, each of which is subdivided into short sections, some more, others less numerous. The first twenty-one numbers contain an equal number of individual histories or cases, derived from various sources, Morgagni, a much-eulogised thesis by M. Dan de la Vauterie, * Rochoux, † Bricheteau, Abercrombie, and several which the author had personally observed and collected at the Hotel Dieu. Each of these cases is subjected to a minute analysis, in the course of which, the pathological facts or opinions which they are calculated to establish are gradually unfolded to the reader. In the arrangement of these cases, our author proceeds, in general, from the simpler to the more complicated, from those with mere distension, simple redness, or vascular injection, to those in which a bloody clot was found. The twenty-second, or concluding number of the First Letter, is of a different character; and, as the preceding ones contain individual cases and the inferences resulting from them, in this last one the author takes a general view of the phenomena, either internal and pathological, or external and symptomatic, presented by the disease,—separates the uniform from the variable characters, and the necessary and essential from those which are adventitious,—and, in short, gives a very elaborate recapitulation of the principal pathological facts which the particular histories establish. The object of this inquiry is, to determine the nature of the diminished consistence of the cerebral substance, and to show that it is the result of a true inflammation taking place in that tissue. For this purpose, after much reasoning, and the adduction of many facts relating to this process as it takes place in other tissues of the human body, he concludes with a rapid, but, on the whole, very just view, of the various steps or stages of which this process, when affecting the cerebral matter, consists, and shows the several modes in which it produces, under various circumstances, different kinds of cerebral disorganization.

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* Paris, 1807. Dissertation sur l'Apoplexie, considerée specialement comme l'effet d'une Phlegmasie.

† Recherches sur l'Apoplexie, 1814.

The Second Letter of our author is much longer than the first. It consists of thirty-two numbers or chapters, arranged nearly in the same order, and on the same principles on which we have already shown the first to be managed. Its subject, as may be anticipated from the general table, is, *softening of the brain, with infiltration of purulent matter, or incipient suppuration.* Particular examples of this occurring in different parts of the brain, and under much variety of attending circumstances, are detailed in the first twenty-three chapters, and accompanied with various observations of the author on the peculiarities of each case, and the probable causes of these peculiarities. The twenty-fourth chapter or number, which is extremely long, contains a most elaborate investigation of the manner in which the facts afforded by the individual histories are to be applied, of the evidence which they furnish to determine the origin and nature of the disorganization, and an attentive consideration of every circumstance by which these points may be illustrated or established. This discussion does much credit to the analytic talent and the industry of the author, and we would recommend the whole chapter to the careful and diligent perusal of our readers. He has shown, with much clearness and force of reasoning, the mistake of those pathologists whose hypothetical propensity has ascribed the cerebral softening to the influence of *ataxic*, *nervous*, or *malignant fevers;* he has, after a diligent inquiry into the regions of the brain most frequently or commonly affected, given the results of forty-six cases in a tabular form; he has, in like manner, and in the same number of cases, exhibited the different periods of the disease at which the fatal event takes place, and considered attentively the average duration of the disease. This is succeeded by an examination of the circumstances which may be admitted as predisposing to its formation,—age, sex, habit, original construction or temperament, moral affections, and violent fits of passion, (V. VI.); and sundry short remarks on the ordinary complications, or the influence which it exercises on other functions, (VIII. IX.); and on the possibility of its approach rendering more distinct the character of a disease, which had till that time continued in a latent or obscure state. Our author then enters on a very interesting inquiry regarding the existence of preceding or warning symptoms, and a full and minute examination of those which may be considered most important or uniform in establishing the diagnosis, and of the anomalies which occur to perplex or misguide the practitioner, by their occasional irregularity or obscurity. This discussion, with several observations to which it gives rise, on the careless manner in which some of the more early observers of the disease have expressed themselves, extends to the twenty-fifth section of this chapter, when the author proceeds to apply his pathological principles to the establishment of a rational method of treatment. To demonstrate the justice and efficacy of his therapeutic precepts in the most effectual manner, the following six cases, from the twenty-fifth to the thirtieth inclusive, are examples of successful termination of the disease, by the seasonable adoption of useful remedies. The last case (the thirty-first), is an abortive, but, finally, fatal attack. The concluding chapter (the thirty-second), contains observations on the neglect or obscurity in which the cerebral softening has been hitherto involved; on the increasing prevalence of any disease in proportion as greater attention is bestowed on it; and on the gradual disappearance, from the language and writings of physicians, of other vague and ill-defined maladies, as pathological knowledge becomes more exact, and more generally disseminated.

The Third Letter of M. Lallemand possesses very great interest, and ought to be well studied, not only by the physician who desires to know the extreme effects of the inflammatory action on cerebral substance, but also by the surgeon who feels the responsibility of knowing exactly the ulterior effects of external violence on the head, and employing, seasonably and energetically, the resources of his art in counteracting their inauspicious termination. The subject is, *perfect suppuration* of the brain, or *complete abscess, with or without pulpy soft-*

*ening* of the contiguous substance; and, as this is more frequent as a consequence of inflammation succeeding to external violence, than when it is spontaneously produced, most of the histories narrated by our author in this part of his subject, are cases of concussion, contusion, fracture, or, in short, examples of what are usually termed injuries of the head. Of twenty-six cases of this description of abscess, with more or less disorganization of brain, only eleven,—scarcely one half,—appear to have originated without external violence. The similarity of the arrangement and application of these records, or narratives, with that of those of the two former letters, renders further detail unnecessary, and, as we shall quickly come to notice, the subject of them useless. We must, however, notice, that the twenty-seventh, which forms the concluding chapter of the letter, our author proceeds to form his general inferences, and to place before the eye of his reader those leading features, pathological and semeiographic, by which the cerebral abscess is distinguished. The circumstance of its being the ultimate or final stage of those which make the subject of the first and second letters, causes some repetition, and leads him to unfold similar, or the same views, in a manner slightly different. This reason, with the great length of the chapter, must form a sufficient excuse for abstaining from any enumeration of its several parts; and, as we shall have occasion to bring its substance more directly before our readers, it is unnecessary to anticipate, without any remarkable purpose or utility.

We have submitted to our readers this bare yet perhaps tedious enumeration of the contents of the works of each of our authors, without entering into the details or the matter of either, and without offering any opinion as to the arrangement, however opposite, which each has adopted. The reasons of this procedure will perhaps be obvious enough. When the same subject is treated by two authors whose opportunities of information are nearly equal, and whose powers of scientific inquiry are perhaps not unlike, it is easy to see that coincidence is unavoidable, and that, however much they may differ in the more minute points of arrangement, they must still agree on the great and material characters of their subject. The arrangement, indeed, is almost the only circumstance in which a practical reader would recognise any thing like an important difference; and in this respect the small work of M. Rostan has the advantage. Within a small compass, and in an order sufficiently distinct, it furnishes all the information which the practitioner desires, or which he will have time and inclination to acquire, and proves, to one who is more willing to be instructed than to be perplexed, or have his faculties sharpened, the origin and nature of the organic change, without much effort of reasoning or display of science. A great advantage also, which this writer possesses, is the extreme facility with which his book may be consulted or referred to, for any individual point of the the whole subject. Of these vulgar errors we must acquit M. Lallemand entirely. His work is undoubtedly, not only the most scientific and profound inquiry of the two, but, we had almost said, more so than any work which has appeared for a long time from the French press. It is, indeed, greatly too profound for ordinary readers; and we very much fear that, notwithstanding its real merit, which is very considerable, it will be more spoken of than looked into, and more looked into than carefully studied. It is unfortunate in a complicated arrangement; and, although we trust that the account of it which we have given will not only render it more obvious, but also guide the reader to those parts which are most useful, and which convey the most necessary information, we still fear that it will have but a slender chance of being perused by that class of medical persons to whom it is most necessary,—those general practitioners who are treating, from morn to eve, distempers of the most opposite character, who are destined to feel, within the hour, the slow heavy pulse of apoplexy, the rapid sharp stroke of traumatic inflammation, or the small tremulous vibration of cephalic fever, with others of less note. To such readers, the work of M. L. cannot fail to be a perfect task,—a labour more insurmountable than the descent to the shades was to Orpheus; and, while it is read and appreciated by a select few, it will be either little known, or entirely neglected by the many. The analytic commentaries on the individual cases are excellent clinical discussions, but they cannot be profitably perused without an intimate acquaintance with the narratives; and, though in this respect indispensable, are too minute for general use. The four general chapters, however, which we have already particularized, ought to be read and studied by all who wish to be familiar with the pathology of this disease, and indeed with that of cerebral disease in general. They contain many ingenious and useful observations, and cannot be too warmly recommended to the attention of the student. In this particular, the work of M. Lallemand is certainly quite equal, perhaps superior, to that of his countryman; and if these general descriptions were placed in a more conspicuous situation of the volume, the reader would be enabled to acquire the essential information in a more direct and easy manner.

The general similarity of matter which thus allies the two works, will appear a reason sufficiently valid for avoiding the separate consideration of the details of each; and it will be more consentaneous with our present moderate limits, the interest and instruction of our readers, and uniformity in the arrangement of these observations, to combine, in one short sketch, the leading circumstances of the pathological and semeiographic history of this malady. While, therefore, we shall not pledge ourselves to adhere to the order or views of either of our authors, or confine ourselves to a mere analytical view of their researches, opinions, or conclusions, we shall make such use of their respective labours as may be profitable and instructive to our readers.

By the term softening of the brain, says M. Lallemand, I understand a species of liquefaction taking place in a part of its substance, while the rest preserves nearly its ordinary consistence. By this softening being confined with more or less accuracy to a single spot, it is to be distinguished from the softening, which is the result of elementary decomposition, and, by its occurring under particular circumstances to be afterwards enumerated, it may be distinguished from the softened state, more or less general, which is observed in the brains of dropsical, phthisical, or other cachectic subjects, in whom death has been preceded by a long or uniform process of deranged health or emaciation.

The natural consistence of the recent adult brain is a thing sufficiently well known, but very difficult to describe or define in precise terms. In general, it possesses a degree of toughness or tenacity which prevents it from being easily divided, unless by a very keen instrument; and generally leaves minute fragments, after incision, on the sides or edge of the knife. A very thin slice of white cerebral matter is sufficiently tenacious and consistent to sustain its own weight, and to admit of considerable stretching, without being broken or lacerated. If put into pure water, it will continue unchanged for at least eight, ten, or sometimes twelve hours, and without any portion of it either being dissolved, or rendering the water in any degree turbid. A newly cut surface of brain communicates to the finger a peculiar clammy sensation, in consequence of which it moves with less facility over the skin of any opposite surface.

These qualities, which may be easily proved to the satisfaction of all, pertain especially to the white substance of the adult brain, when death has taken place either accidentally, or by an acute disease, but without lesion of the organ itself. The consistence of the grey matter of the convoluted surface is, we think, in general inferior to that of the white; at least, if the white matter of the central band or mesolobe (*corpus callosum*) be compared with the substance of any of the convoluted surface, the former will be found to be much tougher and more distensible than the latter. The cylindrical or fluted masses, named *limbs* of the brain, which consist chiefly of white matter, are much firmer than the substance of the striated bodies, which is mostly grey; and the annular protuberance, which is chiefly white matter, is, after many personal observations, by far the firmest and most tenacious part of the organ. In early life, the substance of the organ is much less consistent and tenacious. At birth, its softness approaches to semifluidity; and it is only after some weeks that it passes from a soft pulpy substance to an organ of greater firmness and tenacity; but, even at the distance of many months, it is very inferior indeed in these qualities to the brain of an individual who has attained his fourteenth or fifteenth year. We are not acquainted with any observations which show the progressive increase of the tenacity of the human brain, from the period of birth to that of adolescence or manhood; and we regret, that the small number of opportunities which have occurred to ourselves should prevent us from speaking with so much confidence as the subject demands. We may however observe, that, in three cases of healthy infants cut off by different acute diseases, between the ages of twenty months and two and a half years, the brain was elastic, but not tough; of the consistence of custard-pudding, but not quite so firm as to bear much handling or stretching, without being broken or torn. In several cases of children dead between the seventh and the eleventh year, of scarlet fever, or measles, the brain had become more firm, and had acquired greater tenacity, but was still considerably softer and less tough than the brains of adults who had attained the eighteenth, twentieth, or twenty-second year. After this period of life, we never could recognise any changes of consequence not connected with disease; and, in the brains of several persons who died in extreme old age, we cannot say that we have been able to perceive any difference between their consistence and that of individuals who have died about the middle period of human life.

These peculiarities in the consistence of the healthy brain should be clearly understood, and correctly appreciated, in order to form a just conception of the alteration which they undergo in the process of disease. They may either be diminished sensibly, or they may disappear entirely; and the dissections of our authors furnish cases of every variety of diminished consistence of cerebral substance, from that which is scarcely appreciable, down to the most fluid and soup-like matter. The most common appears to be the middle state, between these two extremes. A portion of brain thus changed, instead of its healthy tenacity, becomes loose, pulpy, and semifluid, like pap (*bouillie*), custard, or, more accurately, custard-pudding, and may be stirred or separated by a probe, scalpel-handle, or any other blunt instrument; an event which is never practicable in the sound brain without laceration. In this variety, the cerebral substance does not entirely disappear, but is mingled with some more fluid matter. In more perfect forms of softening, the consistence is still more fluid, and the substance more completely broken down. The cases narrated by our authors, in short, indicate the following varieties of diminished consistence. The affected portion may be merely soft and flaccid, or loose in texture, in opposition to its natural tenacity and firmness; it may be pulpy and compressible, instead of being firm; it may be semifluid, like custard-pudding, and susceptible of slight motion when gently impelled; or, lastly, it may be semifluid, dissolved or converted into a matter like rotten or excessively ripe fruit. This form of softened brain has been noticed by many under the name of *Putrilage;* and is considered by Dr Baillie, and perhaps some others, as gangrene of the brain. *

With the change of consistence, the cerebral substance simultaneously assumes a change of colour. The colour of the softened part, according to M. Rostan, may be yellowish, greenish, rose-coloured, red, chestnut; it may be like wine-lees, or even of a dull white. These several shades may be also met with in greater or less number in the same individual at once. The greenish-yellow tint is commonly found in cases in which the softening has succeeded an old attack of apoplexy, and it is then confined to the centre of the softened portion. The rose tint of a brighter or deeper shade, appears in cases in which the disease is primary, or has not been preceded by any other pathological event; it is found chiefly towards the circumference of the organ, and especially in the convoluted part of the brain. The wine-lee colour, which is not uncommon, gives the softened part the appearance of a scorbutic spot, or an actual *ecchymosis;* and he looks on it as an abortive or ineffectual hemorrhagic effort. M. Rostan informs us, that he has never, in this variety of colour, seen the altered consistence *single,* or restricted to one spot, but most commonly occurring in several points at the same time. Lastly, it is not uncommon to find the portion of softened brain of a dead white, resembling milk, when the natural colour of the white cerebral substance seems to be heightened in intensity. Other shades intermediate to these, and less distinctly defined, are sometimes observed; but it is impossible to convey a clear idea of them in language; and those which we have thus enumerated, are to be viewed as the general or ordinary varieties of this character of the softened brain. Very similar is the testimony of M. Lallemand on this point. As, however, he has made the varieties of colour subservient to his pathological opinions, and has founded on them in some degree his arrangement and distinctions of the stages of the disease, we feel ourselves obliged to separate his facts from his inferences, and, at the risk of being tedious, to adhere to a dull enumeration of the actual varieties observed. In all the cases detailed in his First Letter, the softened portion of brain is some shade of red or brown; but, in those of the Second, it is sallow, yellowish, greenish, &c. These varieties of colour will be most distinctly understood, if the reader will contrast them, as he finds they are presented in the following Tables of the most important characters of this change, from the cases of M. Lallemand.

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* "Portions of the brain occasionally become *gangrenous,* especially after violent injuries of the head; but I believe this appearance of disease is extremely rare, where an inflammation of the brain has taken place from any other cause. I have met, however, with one instance of this; a portion of the brain at the inflamed part was of a *very dark brown colour, and as soft as the most rotten pear.*"—*Morbid Anatomy by Dr Baillie,* pp. 441, 4to Edition.

TABLE I.

| *Part Affected.* | *Consistence.* | *Colour.* | *Remarks.* | *Death.* |
|---|---|---|---|---|
| 1. Left optic thalamus. | Soft. | Brown. | Mixed with sanguinolent fluid, most distinct at centre. | Some days. |
| Exterior contiguous substance. | Almost fluid. | Dirty sallow. | | |
| 2. Middle of right hemisphere. | *Putrilage.* | Brown. | | 6-7. |
| Surrounding part. | Hardened. | Amaranth red. | | |
| 3. 2 inches of posterior part of left hemisphere. | *Putrilage.* | Brown. | | Some days. |
| Circumference for 2 lines. | | Red or rose-colour. | | |
| Some points. | | Brown. | | |
| 4. Middle of left hemisphere. | Softened | Infiltration of blood. | | 3-4. |
| Striated body. | Pap (*bouillie*). | | | |
| 5. Several points of convoluted surface. | Softened. | Deep red. | Vessels very distinct. | 8. |
| 6. Surface of right hemisphere. | Softened. | | | 20. |
| 1 inch of white matter. | Soft and diffluent. | No change. | Colour and consistence insensibly lost. | |
| Striated body. | *Putrilage.* | Wine-lee. | | |
| 7. 3 or 4 inches of surface of left hemisphere. | Soft and like pap (*bouillie*) in middle. | Reddish. | Two portions of effused blood in middle. | 12. |
| Surrounding substance to the oval centre. | Soft. | Yellowish. | | |

TABLE I.—*Continued.*

| *Part Affected.* | *Consistence.* | *Colour.* | *Remarks.* | *Death.* |
|---|---|---|---|---|
| 8. Upper part of left middle lobe. | Soft. | | Removed with arachnoid. | 12. |
| .Convolutions 1½ inch deep. | Soft as if diffluent. | Greyish, enclosing a substance of deep brown. | Ascribed to effused blood. | |
| 9. Under the anterior part of left ventricle. | Middle soft, and half reduced to purulent fluid. | Amaranth red, 1½ inch square. | Blackish clots of blood in right ventricle. | 2 months. |
| 10. Centre of right hemisphere. | | Red and inflamed. | Two spoonfuls of clotted blood, walls of cavity covered with puriform matter. | 2 months. |
| 11. Fore part of left hemisphere. | Softening round two clots. | Injected and infiltered with blood. | | 8. |
| Posterior part of left ventricle. | *Bouillie*almost diffluent under scalpel, points of suppuration. | | New cavity, like an accidental ventricle. | |
| 12. Oval centre of left hemisphere. | Like pap. | Unchanged. | Hypersarcosis of heart, ossified arteries. | 15. |
| Middle of striated body. | Softer near to the striated body. | Red, with bloody infiltration. | | |
| 13. Central part of right optic thalamus, ½ inch. | Softening. | Brownish. | Recent false membrane in surface of optic thalamus. | 4. |
| Left striated body. | Softening. | | | |
| 14. Striated body, right side. | Cavity containing substance like thick pap (*bouillie*). | Deep grey in centre, greenish yellow at circumference. | Cerebral matter not destroyed, but penetrated with purulent fluid. | 12. |
| 15. Striated body, right side. | Eroded in ⅔ anterior, 1 inch superficial extent 1½ thick. | | | |
| Centre of striated body. | Soft,—and striated appearance gone. | Greyish. | Could be raised and scraped with scalpel-handle. | |
| Surrounding white matter of hemisphere for 5 or 6 lines. | Equally soft. | Slightly yellow. | *Disintegration* of white matter. | 17. |
| 16. Grey matter of the convoluted surface of both hemispheres. | Softening. | | The disorganization extensive, and disseminated irregularly over the grey matter. | |
| Several points of grey substance. | Pap. | Greyish. | | 13. |
| Other points. | Sanious substance *putrilage*. | Sprinkled with blood-gouts. | | |
| 17. Annular protuberance. | Above, like pap. | White. | | 1½. |
| | And below. | Greyish. | | |
| 18. White matter of hemisphere. | Soft. | Brown throughout | | Few days. |
| Lucid *septum*. | Broken. | | | |

### TABLE I.—*Continued.*

| *Part Affected.* | *Consistence.* | *Colour.* | *Remarks.* | *Death.* |
|---|---|---|---|---|
| 19. White matter of brain. | | A little brown injected in several points. | Dirty-coloured blood escaped during section of cranium. | 2. |
| 20. Grey substance at upper part of hemispheres. | Of softness almost diffluent. | Sanguinolent. | | 3 months. |
| 3 or 4 inches from before, backward, and right to left, and 1 inch in depth. | | Of a dirty brown. | | |
| 21. Posterior part of optic couches. | Soft and half corrupted. | Brownish colour. | Epileptic attack. | Several days. |

### TABLE II.

| *Part Affected.* | *Consistence.* | *Colour.* | *Remarks.* | *Death.* |
|---|---|---|---|---|
| 1. Grey substance of middle and posterior lobes. | Diffluent, comes away with membranes. | Dirty white. | Drops of thick puriform matter. | 7. |
| Upper part of posterior lobe. | A pea of real purulent matter. | | | |
| Lower part of middle lobe. | Infiltration of small quantity of blood. | Brownish. | | |
| 2. Anterior part of right hemisphere, ¾ of striated body, part of the mesolobe. | Softened, and reduced to a pultaceous pap. | Seemed to be a trituration of brain, with puriform fluid. | | 5. |
| 3. Grey matter of surface of right middle lobe. | Very soft. | White, and enclosing minute cavities of white puriform fluid. | Death took place when he was walking about, and seemed to be getting better. | 9. |
| The contiguous convolutions, and striated body. | Softened. | As white as the oval centre. | | |
| 4. Back end of left hemisphere. | | | A soldier, aged 38, in whom the subclavian artery was tied above the clavicle, for axillary aneurism; on the night of the 7th day after operation, the symptoms came on, and death took place on the evening of the 10th; the brachial twigs issuing from the third cervical nerves, were included in the ligature. | |
| Surface. | Compressible. | Greenish. | | |
| Substance. | Diffluent softness. | Greenish. | | |
| Centre to the left lateral ventricle. | A purulent cavity, fluid thickish. | Greenish. | | |
| Surrounding substance. | More consistent. | Vascular and injected. | | 10. |

TABLE II.—*Continued.*

| *Part Affected.* | *Consistence.* | *Colour.* | *Remarks.* | *Death.* |
|---|---|---|---|---|
| 5. Grey matter of convolutions. | So soft as to dissolve the moment it was touched. | | The cavity is said to have contained a livid *putrid* matter, without odour. | 6. |
| Left ventricle. | A cavity equal in size to a large nutmeg. | | | |
| 7. Right hemisphere. | Soft, and as if fluctuating. | | | 21. |
| Upper wall of right ventricle. | Considerably softened. | | No watery effusion in the ventricles, or bloody clot in the substance. | |
| Optic thalamus, and part of the striated body. | Reduced to a kind of pap. | Less white than the white cerebral matter. | | |
| Left hemisphere, its upper part, and near the vault. | More consistent.<br>Pulpy. | Same colour. | | |
| 8. Great part of the anterior left lobe. | Pulpy. | Yellowish. | Had fallen on the head some months before fatal attack. | 8. |
| Its grey matter. | Extremely soft. | Yellowish. | | |
| 10. Annular protuberance. | Soft and diffluent uniformly. | Uniform yellow colour, no bloody effusion. | | 2 months. |

From the 10th to the 17th cases inclusive, although the parts affected are noticed, and the degree of softness remarked, yet no particular change or quality of colour is mentioned. The following five cases, 18, 19, 20, 21 and 22, are examples of softening occurring in the white cerebral matter of the vault; in all of which it appeared in the form of whitish homogeneous pap (*bouillie*), without consistence, and without any vascular colouring or bloody infiltration. In general, cases of this kind are connected with serous, or sero-purulent effusion in the cavities, and inflammation of the arachnoid surface of the soft membrane.

| *Part Affected.* | *Consistence.* | *Colour.* |
|---|---|---|
| 23. Right ventricle. | Half a pound of pap, blue, or of chocolate. | Chocolate colour. |

Inspection of these Tables will show, that the colour of the softened portion of brain is very seldom, almost never, the same as that of sound cerebral substance,—and that, in the first Table of cases, it is generally some shade of red or brown, but, in the second, more commonly of a dirty white, or yellowish, or a greenish hue, or in some instances these combined with the colours of the cases of the First Table. In the third case of Table I., the softened portion was in some points rosy, in others of a deeper tint; in the 2d and 9th, the colour of the dissolved mass (putrilage) was amaranth red; in the 5th, in which the convoluted matter was affected, it was deep-red; in the 6th, it was violet, or the wine-lee colour; and in the 12th, where the part was infiltrated with blood, the colour of that fluid was unequivocally recognised. In the 1st, 8th, 13th, 18th, 19th, 20th, and 21st, the predominant shade of the softened parts was brown, sometimes as in the 8th and 20th, with distinct traces of effused blood in the process of dissolution. In the other observations of this table, in which this series of colours was either less conspicuous or not recognised, we find that the softened portions were greyish or yellow, as in 14th, 15th, and 16th, or one part of the softened spot was grey, and another brown, as in the 8th. In one instance, the 17th, in which the annular protuberance was the seat of the morbid change, the upper part of this body was converted into a white, and the lower into a grey pulp.

"In conclusion," says M. Lallemand on this subject,—"1st, The difference of colour which is presented in different forms of cerebral softening, though often very considerable, must not lead to the inference that they are distinct diseases. 2d, The grey substance, which admits a great many large blood-vessels, has a peculiar disposition to softening, with vascular injection, infiltration, or effusion of blood; while the same alteration of the white substance, which receives few and smaller vessels, is very rarely accompanied with remarkable injection, but is, on the contrary, pale, citron yellow, greenish, &c. The grey, brown, blackish tints depend less on vascular injection than on mixture of blood with grey cerebral substance, and is not observed in the white cerebral tissue." p. 81.

The observations which we have from our author's arrangement, referred to the Second Table, furnish examples of softened brain, distinguished by different sensible qualities from those of the First. In the most of them, the softened portion was either of a light green or yellow shade, or of a dull white colour. In one case only, and in one spot of the morbid part, was the colour brown; so completely had this series of colours disappeared in the examples of this Table. Examination of the history of these appearances, and comparison of them with each other, will show at once, that the coloration of the softened brain, in the first series of cases, arises from the presence of blood in various forms, and at different stages of the morbid process. The varieties of colour observed in the second series of cases, are to be ascribed to other circumstances. M. Lallemand is disposed to attribute them uniformly to purulent fluid; and, undoubtedly, several of his *observations*, especially those in which the softened part was either quite yellow or whitish, appear to belong to this class. But we are of opinion, that in many both of his cases and those of M. Rostan, the fluid was little else but the serous part of the blood mingled with broken-down cerebral substance. The instances of softened vault *(fornix)*, in the five cases of the Second Letter already noticed, appear to be of this description. It is by no means requisite, indeed, to believe, that purulent or puriform fluid must be secreted in this form of softened brain; and the conclusions regarding its nature might be drawn quite independently of the existence of this phenomenon.

The situation, or the particular regions of the organ in which this morbid change generally takes place, is a point of considerable importance in its pathological history. The observations hitherto collected show, that it may take place in any one point of the whole brain, and that there is scarcely a spot, which, under particular circumstances, may not become its prey. This general expression, however, of its locality will be of little use and less interest to the practitioner; and examples distinctly show, that some situations of the organ are more readily affected than others. The cerebral softening may be superficial or deep; it may commence at a part of the surface of the organ, and may spread extensively or sink deep into its substance,—or, originating in the substance, it may be diffused to a considerable distance round. In the first case, when the diminished consistence is superficial, the convolutions are disfigured, and, as it were, puffed up in a circumscribed point, or over an entire hemispherical surface, but with more or less irregularity. It very rarely, indeed, occupies both hemispherical surfaces. In other instances of diminished consistence, the change of colour in the grey matter of the convoluted surface is the only circumstance which proclaims its locality. This, instead of its natural yellowish-grey, is in some points rose-coloured, and almost always in the half only of its thickness. When those parts are touched, or impelled gently with the tip or pulp of the finger, they are at once found to be softer than those which have retained their organic figure and colour. They communicate, indeed, a sensation of fluctuation, as if a fluid was contained beneath the convoluted surface. When cut, the sections are obtuse, rounded, irregular, and are completely destitute of the smooth, clean surface which is formed by an incision of healthy cerebral substance. The back or handle of the instrument, or any other edgeless object passed over the altered spot, generally removes a portion of it,—a result which never happens when the consistence is natural. The colour of this superficial lesion is not always rose-red, and it may be greenish-yellow; or this tinge is met at the same time as the other, and in parts more completely softened. It belongs especially to the convoluted surface, the depressions of which it follows, and is rarely propagated beyond their proper grey substance, or the outer limit of the white cerebral matter. Its most frequent extent is an area of two or three inches; but it has been known to occupy the half or the whole of a hemispherical surface.

To the deeper seated form of cerebral softening, all the regions of the brain are liable; but the most frequent localities may be stated in the following order;—the striated eminences and the optic eminences are more common than any other; then the central part of the hemispheres (the middle lobe of the ordinary descriptions), the cerebellum, and the cerebral prolongations. In the cases by M. Lallemand, besides two from Morgagni, in which the description renders it probable that the striated body and optic chambers were the affected spots, there are four instances of it occurring in the right striated body, one in the left, three in the optic chambers, and one in both sides at once. The cerebral substance contiguous to these bodies is also very commonly affected; and in almost all the instances of softening of either striated body, the diminution of consistence extended for some space around. Only two instances of softening of the protuberance are recorded,—a fact to which we shall soon advert in the way of explanation. The testimony of M. Rostan, that he has not often met with it in the median wall or partition (*septum lucidum*), is singular; for it is the part which our own observations have most commonly shown to be softened when there is fluid in the ventricles. We believe there are one or two instances of it in Dr Abercrombie's papers; and Dr Craigie has described it in this Journal as an interesting, but not uncommon result of the accumulation of fluid in the ventricles. M. Lallemand quotes the cases of Dr Abercrombie. M. Rostan informs us, that he has never met with this softening in the spinal chord; but it is not only convenient but interesting to observe, that very shortly after the first appearance of the papers of this author, M. Pinel, the son, published a short essay in the same work, containing several cases of unequivocal softening of the nervous matter of this body. More of this afterwards. It is impossible to assign any limits, or to mark the average extent of this change in the consistence of the brain. According to various circumstances, frequently unknown and always difficult to discover, it may be small or large, circumscribed or diffused; its boundaries are never well defined,—but the centre of the affected part is generally softer than the circumference, which again is less firm than the contiguous matter, but often terminates on it gradually. We have already seen, in the course of tracing its pathological history, that this morbid softness is oftimes combined with some other phenomena, not of healthy character, occurring in its vicinity; we have noticed, that it is frequently combined with appearance of bloody spots of various size, and in several cases with the infiltration or effusion of blood. In many of the cases described by both our authors, a bloody clot was found in the centre of the softened spot; and in others, where the blood was diffused in smaller quantity, or infiltrated into the cerebral substance, as they have termed it, the softened part continued to retain the marks of this infiltration. We have now to remark, that the ventricles generally contain, at the same time, a considerable quantity of fluid,—a circumstance which will explain the reputed frequency of serous apoplexy or hydrocephalus occurring much in advanced life; and which has often been taken for the disease of which the individual died, although it was merely one of several phenomena, the existence of which arose from the same morbid process. The cerebral softening accompanies cancer of the brain, and all its organic diseases. In ordinary circumstances, the cerebral arteries are ossified to a greater or less extent, when the organ is softened.

The sketch which we have already traced of the anatomical or physical characters of this change, will certainly enable our readers to form some idea of its nature, and its pathological character. It will show them that the structure of the portion of brain thus affected, must be completely, or very much destroyed; that such changes as we have described, in consistence and colour, cannot take place without changing or destroying completely the delicate disposition of cerebral substance for which the sound organ is distinguished. The softening is, indeed, a literal *destruction* or disorganization of the part; and if submitted to examination, either with the microscope or a good magnifying glass, and contrasted with that which continues in a state of integrity, it will be found to possess no longer the characters of sound cerebral matter. This disorganization will be then found to be various in degree, in the same manner and proportion in which the diminution of consistence varies. In the first degree of the disease, the cerebral substance is not entirely gone, or at least has not disappeared; but a softer and more fluid matter is disseminated through it. This softer matter is in general broken-down cerebral substance, and does not appear to be a new secretion. M. Lallemand would probably look on it as puriform fluid mixed with cerebral matter. In what may be considered the second degree of disorganization, the affected part resembles literally a thick bread-pap. It generally occurs under the form of the walls of a preternatural cavity, or in some of those objects which form the figurate or central surface of the brain. The surface, for example, of the striated body, or the optic couch, or a cavity in their substance, may, when exposed by dissection, present a rough irregular appearance like moistened bread, and, with diminution of consistence, the natural smooth aspect of the one, and the clean incised surface of the other, are equally lost. This, we believe, is generally mentioned as the abscess or ulcer of the brain;—we cannot say at present with what justice. In the third variety of disorganization, the consistence is still less, and, with the alteration of colour already noticed, the cohesion of the cerebral substance is so much destroyed, that not a portion of it can be recognised. It is difficult to determine, in every instance, the nature of the fluid part of this form of cerebral *destruction ;* it is probable that it is not uniform ; and that, though in several cases it may be varieties of imperfect purulent fluid, it cannot always be deemed of this kind. Under the last variety of softening disorganization, may be ranked all those which are not referable to any of the previous kinds. The softness is extreme, approaching to fluidity or liquefaction. Indeed, no trace of cerebral structure can be recognised, and the whole is a homogeneous or uniform mass of fluid or semifluid pulp.

What is the nature of this disorganization ? What is the material cause or agent by which it is produced ? On this important question, we believe the medical authorities of Paris are disposed to indulge in some difference of opinion. One party, among whom is M. Recamier, look upon it as the effect of a nervous, ataxic, pernicious or malignant fever, the action of which is exercised on the nervous system, or as the result of a pernicious asthenic principle, which, in softening the brain, produces local inflammation, or hemorrhage. By other pathologists, however, it is believed to depend on a state of the part similar, or the same, as inflammation in other tissues. Both of our authors agree in considering it as the result of an inflammatory process, and account the softening as a true cerebral inflammation in various stages of progress. M. Rostan does this very shortly by showing, that the characters of inflammation are, in the majority of cases, observed to attend the morbid change ; that the part is red ; that fixed pain often precedes the disease ; and that the constitutional symptoms could be occasioned by no other agent. He however avows, that there are cases of cerebral softening which cannot be ascribed to this cause ; and he therefore concludes with admitting two species, —an inflammatory and a non-inflammatory disorganization.

In the 7th section of his 22d number or chapter (Letter I.), M. Lallemand enters on this inquiry with the expression of the hope, that the perusal of his cases must convince his reader that the destructive softening depends on inflammation of the brain. But as this conclusion is important, and at variance with the opinions of several eminent physicians, he proceeds, by various reasonings, to show that it is well founded. · While we believe the inference correct as a general principle, we cannot avoid thinking, that our author has deduced it most illogically, and has involved both himself and his reader in much unnecessary disquisition, and some inconclusive argumentation, by not perceiving distinctly the object of his inquiry, and by losing sight of some links in the chain of demonstration necessary to establish his principles. It was surely quite gratuitous in M. L. to support his cause by the inconsiderable exception of the single authority of M. Recamier, or the friendly confirmation in the opinions of Morgagni, M. Dan de la Vauterie, or even of our correspondent Dr Abercrombie. Much less was it consistent with sound reasoning, or the interest of his cause, to have recourse to the vague and fluctuating, sometimes pliant, evidence of analogy. From all medical reasoning, and every medical inquiry, we would banish two things,—the adduction of authorities, and the evidence of analogy. The evils which they have entailed, not merely on the science, which is a trifle, but on the art, which is a serious matter, are incalculable, and can be estimated by none but those who are intimately acquainted with the history of the art. They encourage habits of loose and declamatory reasoning, are inimical to inquiry and research, and are the ordinary resort of those who, being too indolent for the task of observation or investigation, are willing to rest satisfied with easy means of forming opinions. The object of M. Lallemand was to prove, that the appearances observed in softened brain are such as result from that process which pathologists have agreed to term inflammation; and his duty therefore was, to observe and describe accurately the change of structure, consistence, and other physical qualities peculiar to softened brain, to have traced them in its several stages, from its early and almost imperceptible, to its perfect and unequivocal state, and, by following the successive steps of the process, and the mode in which they passed into each other, and connecting them, as nearly as practicable, with the changes which they induce in the functions of the living body, to have shown that it was, at least in many instances, the result of an inflammatory action. In such inquiry, indeed, there are difficulties, arising from the vital properties, and the inaccessible site of the parts; and it is only by an approximating proof, as our author himself observes, that it is possible to infer the inflammatory nature of the process which terminates in cerebral softening.

Though pathologists are agreed on the conditions requisite to constitute the state of inflammation, there is no organ in which it is so difficult to apply them as the brain. The difficulty consists in two peculiarities;—1*st*, the obscuration or envelopment of the proper signs of cerebral inflammation, as local pain and quick pulse, in the effects which the congested or morbid state of the cerebral blood-vessels produces on the vital properties of the organ, and on the system at large;—and, 2*d*, in the different, opposite, or unequal effects which result from affection of different regions of the organ. When a portion of brain, even inconsiderable, is inflamed, the condition of its vascular system is very soon followed by effects on the intellectual functions, and sensation, which prevent the system from manifesting, and the observer from perceiving, the influence which a local inflammation, under other circumstances, would exercise. The stupor or frenzy of the patient prevents him feeling or giving any account of his sensations. The condition of the inflamed organ itself soon affects the motion of the heart, and diminishes the frequency and force of its contractions so much, as to seem inconsistent with a state of inflammation. The state of the tongue and skin are not uniform, and consequently cannot be relied on as pathognomonic signs; and if the patient become, as he most frequently does, typhomaniacal or comatose, the physician has but few circumstances left to guide him in forming a judgment of the nature of the action going on in the organ, at least during the life of the individual. These symptomatic effects, however, are not uniform in their presence or degree. We have all seen the great variety of symptoms which succeed similar forms of injury done to the head. It is nearly the same when the injury proceeds from an internal cause. When one region of the organ is inflamed, the individual will perhaps continue to retain his sensibility and intellectual acuteness to the last. When another part is affected, he will be comatose or convulsed from the beginning to the end of his disease. The inflammatory action developed in one part of the brain, will extinguish life ere it has continued a few hours. In another region, it will run through all its stages, and produce extensive and effectual disorganization, before the other functions of the body shall feel so far the sympathetic influence as to cease to be adequate to the continuance of life. It is only by the application of these considerations, that it is possible to explain the occurrence of M.

Rostan's anomalous or latent cases, and such instances as the 5th of M. Lallemand's second Letter.

The knowledge of the circumstances which tend to obscure this part of the inquiry, will also show that inflammation may exist without being indicated by prominent symptoms; or rather, that the obscurity of these signs forms no argument against the inflammatory nature of the disease. It is more than probable that, in this particular instance, the obscurity arises from careless or imperfect observation; and that, if all the cases were watched from their first commencement, we should have less reason to complain of the difficulty of determining the nature of the disease, or of the obscurity of the signs by which it is attended. This defect in the evidence has been well supplied by the observations and cases of the 3d Letter of M. Lallemand, in which, as many of them were the consequence of mechanical injury inflicted on the head, there was less room for doubt as to the nature of the morbid process. The evidence, in short, for the inflammatory origin of one form of the cerebral softening, may be reduced to two points. The first of them is formed from the appearances observed in several cases at different periods of the morbid process, and in different parts of the same example of cerebral disorganization. The second is, that the same or a similar series of appearances is observed in cases in which cerebral inflammation had unequivocally succeeded to external violence inflicted on the head. This, however, will account for that form only in which there is general softening, with or without vascular injection. The other examples of softening, in which a bloody clot is found in the centre of the softened mass, may either not arise from inflammation at all, or may be connected with it only as an exciting or mechanical cause. This fluid effused on the the surface, or into the substance of the brain, is placed in peculiar circumstances;—its situation prevents it from escaping or being removed, unless by the powers of the living system; and as it is deposited in an animal substance of very delicate and compressible structure, where there is no vacant space for its continuance, it must act entirely as a foreign body. On this subject, we refer to an article in the 73 Number of this Journal, where similar views are stated of the effect of the effusion.*

This species of softening, therefore, must be regarded as a true cerebral hemorrhage, which has not been so considerable or of so injurious locality as to interrupt or destroy the vital actions,—as an apoplectic attack, which has not proved immediately fatal. That this is as certain as such conclusion can be rendered, is, we conceive, indisputably proved by identity of locality in the hemorrhagic effusion, and the soft disorganization which surrounds the clot. An examination of the cases before us will show, that the most of those in the centre of which a bloody clot was situate, occurred in the body either of the optic or striated eminences—the most ordinary locality of the cerebral hemorrhage which gives rise to the symptoms of apoplexy. Of 41 examples of this last disease recorded by Rochoux, 24 occurred in the striated body, 2 in the optic chamber, 1 in both of these parts, 1 under the striated body, or at the lower region of Reil's capsule; and one said to have been found in the middle lobe, appears to have been within the circumference of the same capsule. Of 46 cases of cerebral softening recorded by Lallemand, 13 occurred in the striated and optic eminences, and most of these presented either the vanishing traces of effused blood, as red, amaranth, or brown coloration, or contained actual clots of blood. We have long been accustomed to trace, in dissections of persons who have had cerebral hemorrhage, the process of breaking down or disorganization of the cerebral matter around the effused blood; and we think we have seen in many examples, most of the successive changes of which the process consists. We have seen the recent fatal effusion, the same after 24, 30, or 40 hours, when some change begins to be manifested in the cerebral matter; we have seen it after one week, two, or three, when the bloody coloration had not disappeared, but when the cerebral substance was distinctly much, though not extensively, softened; and after months, when no other traces were left but a cavity, or a part of the surface broken and softened like moistened bread. It cannot be doubted that this softening which succeeds to the effusion of blood, is an effect of the presence of that fluid in a texture not accustomed to such a substance. That a degree of inflammation does accompany its presence, we believe must be admitted, if it be remembered how easily the presence of any foreign substance gives rises to this process in cerebral substances; and we do not consider it as an extreme piece of Hippocratic pathology, to look on this process as part of the natural effort, by which the portion of brain endeavours to get rid of a body alien and injurious to it. We regret to observe, that a pathologist like M. Rochoux, doubts the origin or nature of this hemorrhagic softening, and thinks it probable that it may precede the hemorrhage, or be its proximate cause; and that M. Rostan, in several instances, is disposed to entertain the same opinion. An antidote, however, to this mistake is found in his subsequent cases, all of which almost present softened disorganization *consecutive to hemorrhage.* Without this error, a like view of the origin of this hemorrhagic disorganization is given by M. Lallemand. After showing the pathological effect of violent, rapid, cerebral congestion, vascular distension, &c., he proceeds thus.

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* On the Pathological Anatomy of Human Brain. By Dr Craigie. Med. and Surg. Journal, Vol. xviii. pp. 503, 505.

"If the congestion be more energetic, or concentrated to a single point of the organ, or the vessels be less resisting, *hemorrhage, effusion of blood more or less considerable, disorganization and sudden compression of brain;* instantaneous palsy, proper apoplexy. If the congestion be less rapid, but longer continued, *infiltration, combination of blood with cerebral substance, effusion of blood-drops;* the hemorrhage is imperfect or abortive, the congestion continuous; *softening disorganization of the brain;* intermediate state between apoplexy and inflammation,—*peculiar abscess* of Ebn-Sina, *apoplexy from suppurating congestion (a repletione apostemante.)* If the congestion be still slower and more uniform,—at first *bloody injection of brain,* convulsive pain, stiffness, &c.; then *alteration of cerebral substance,* numbing, successive palsy of superior and inferior extremities; lastly, *complete destruction of brain,* resolution, flaccidity of members, as in apoplexy. A first violent congestion produces bloody effusion; subsequently, when there are fresh congestions, the presence of a foreign body is attended with *consecutive softening of brain,*" &c. &c.

With the general facts of this view, we completely agree, and especially concerning the relation in which the pulpy destruction stands to cerebral hemorrhage,—as a result and consequence, and not as a cause or previous event, of that state. Our conception of the pulpy disorganization, in short, is, that it is by no means, and in no circumstance, a primary disease, but that it is the result of another preliminary action. This previous event may be various; and we think the observations already recorded, lead most clearly to this conclusion,—that it may succeed to three morbid states of the brain. The first of these is the blood-stroke, (*coup de sang,*) or general suffusion of blood through any order of cerebral vessels,—the injection of the vessels of a certain region. The presence of red blood in considerable quantity in the capillary system, accustomed only to the colourless part of that fluid, and the distension of the red vessels themselves beyond their ordinary caliber, is soon succeeded by the breaking down and disunion of a substance so slender and delicate as that of the brain; and finally, by the diminution of its cohesion and consistence, in the manner we have mentioned. The second state, which is followed by this pulpy destruction, is the actual effusion of blood, which, in a manner sufficiently obvious, produces the same effect. The third state is that which either precedes or accompanies the process which terminates in hydrocephalic effusion.

We have dwelt so long on the pathological character of this disease, that we must, without farther delay, hasten to bestow some little attention on the other divisions of its history,—its termination, the diagnostic symptoms by which it may be known, its causes, and its treatment.

The facts which we have already had occasion to adduce in illustration of the nature of this malady, must doubtless have enabled our readers to form some idea of its usual career, and its mode of termination. It will be at once perceived, that when any degree of the change of structure or consistence has once taken place, it is impossible to conceive any thing like restoration, or reorganization;—much less can this be expected in the more perfect forms of *destruction*. We have already attempted to show, that it is not a morbid action, but the effect of one; and unless this spontaneously cease, or be suspended by the means of art, the affected portion of brain will undergo disorganization; and it will depend on the locality and extent of the affection, whether it will immediately terminate the existence of the living body. It appears in general, from the testimony of M. Rostan, and from the cases of M. Lallemand, that death is, at an earlier or later period of its course, the natural termination of the process. The distinctions of the schools are here futile and useless; it is absurd, and argues ignorance of morbid action, to talk of resolution in an animal substance, the organization of which has been injured or destroyed;—restoration, which is physically impossible, is the only mean by which we can conceive the integrity of the vital functions capable of continuation. It is only before the organic change has taken place, that we can rationally hope for a favourable termination.

This uniform fatality renders a correct knowledge of the previous and of the discriminating signs of the disease, of the utmost importance to the practitioner; and we shall therefore, without attempting to enumerate all the morbid phenomena with which it is attended, confine our present observation to the discovery of those more important ones, by which its presence may be determined. We learn from both our authors, that the process of cerebral disorganization is preceded by many unusual sensations, which, however, are often obscure, not always uniform, and, what is more perplexing, by no means peculiar to the disease. Obstinate, fixed pain of the head, or a sense of weight, giddiness, unwonted dulness of intellectual faculties, peevishness when awake, and frequent drowsiness, are the symptoms which most commonly precede the action which is to terminate in pulpy disorganization of brain.

Yet the local pain is not always complained of,[*] the giddiness is seldom uninterrupted, the change in the moral and intellectual qualities may spring from other causes, and somnolency may take possession of many persons under particular circumstances, without indicating serious disease. None of these symptoms, as M. Rostan has remarked, except the local pain, can be admitted to indicate in a positive manner the state of the brain, or any of its regions; and if they were all united, they would merely proclaim a general congestion or fulness of the cerebral vascular system. More decided information may be obtained, if the individual complains not so much of positive pain, as a sense of constriction or girding round the head, as if the parts contained were too large for those containing; and we have uniformly found, in this early and uncertain period of the malady, the nature of this symptom made more manifest by the effect of coughing, or placing the patient with his head in the horizontal or dependent position. In persons who complain of a sense of weight, with frequent or occasional fits of giddiness, the same simple contrivance will be of much essential use in ascertaining the state of the cerebral circulation. Neither of our authors place any reliance, so far as we can perceive, on the information furnished by the state of the general circulation, which they deem too fluctuating and inconsistent to be trusted to. This, we believe, is a mistake. It is exactly at this period of the disease that examination of the pulse is useful; and, if we except the period which, in our opinion, immediately succeeds this, there is no other at which its intelligence is so distinct. In the majority of cases, it is either small and quick, at least 20 beats in an adult more than natural, or it is full, heavy, and very easily accelerated,—when it becomes smaller and sometimes irregular. This condition is more manifest after meals, exercise, or in a warm apartment. In some instances, however, of the preliminary stage of this disease, in which the only symptoms are frequent fits of distressing giddiness, with indistinct memory and confusion of thought, the pulse continues nearly the same as in health. In several cases in which a disordered state of the senses of sight and hearing appears among the preliminary symptoms, it is probable that the double, impaired, or depraved vision, and the morbid sensibility of the organ of hearing, are connected with a local or circumscribed form of disease. The sense of formication, numbness, or stiffness of the upper extremities, and the difficulty of prehension which generally follows, should be held to indicate a more extended and profound cerebral affection; and, if united with topical pain, weight, or giddiness, can leave no doubt as to the pathological state on which they depend.

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[*] Rostan, chap. I. § 1. p. 12.

The symptoms which we have already examined, may be conceived to indicate the nascent or embryo state of the disease,—or a condition of simple congestion rather than inflammation; but those which M. Rostan has mentioned in the conclusion of the first period, are undoubtedly signs of a more fixed and positive disorder. When delirium, senile fatuity, or any other form of mental alienation, with agitation and distinct febrile symptoms,* have appeared, they must not be idly viewed as mere preliminary or monitory signs, as M. Rostan has recommended. They show distinctly that the process is commenced which terminates in pulpy destruction of part of the organ; the physician cannot entertain a doubt with regard to the progress of the malady, and he must prepare to obviate the established inflammation, and prevent consequent softening. M. Rostan may not be wrong in saying that these symptoms precede this destructive process; but this is only a decisive proof of the justice of our opinion, that the pulpy disorganization is to be viewed not as a disease, but rather the result and effect of morbid action. The undeniable truth of this fact proves the impropriety of the two periods, into which our author has divided the semeiography of the disease. He represents the symptoms of the second period as commencing either with the sudden or gradual loss of a member, or even half of the body. Now, it appears to us, that the disease must be in a more advanced state, or, in other words, that the brain must be more completely injured, than will be inferred from M. Rostan's division, when this event has taken place. The truth appears to be, that, after the signs mentioned at the beginning of this paragraph have appeared, the transition to the more decided characters of the advanced disease is easy and gradual; and though the circumstance of a man falling down motionless be sufficiently striking to a common spectator, yet the sagacious observer knows that the process, which finally led to this sudden event, had been going on gradually and uniformly. With palsy of a limb or a set of muscles, the patient experiences various other sensations, which are perhaps to be ascribed to the imperfect or irregular circulation and irritability which attend this loss of power. Of this nature are the numbness, great weight, formication, prickling, or, in short, severe lancinating pain,—the last of which sensations M. Rostan considers a certain sign that the process of softening is going on. He places the same diagnostic value on spasmodic motions, whether of the tonic or clonic kind; but he informs us that neither of them are very common, and may occur only once in twenty cases. This indeed is the difficulty in this stage of the disease, that though the symptoms described, when they do occur, place the disease beyond doubt, yet it may often be far advanced without their appearance. The state of the intellect, and of sensation in general, is not unlike what occurs in ordinary affections of the brain. Loss of memory and judgment, typhomania succeeding to delirium, and coma, are the ordinary phenomena of the termination of the disease. We must, however, notice two symptoms, which, though like the others, not uniform, furnish certain information when they appear. The first of these seems to be common to this with similar states of the brain. This is the *smoking* symptom *(fumer la pipe)*. When the half of the face is paralyzed, it generally happens that the air expelled from the chest at each expiration, raises and distends the cheek, and escaping, produces a sound not unlike that which is made by the smoker, when the smoke after passing through the lungs, issues from the mouth in which it had accumulated. According to M. Landré Beauvais and our authors, it is a very inauspicious symptom. The other symptom is peculiar to the cerebral softening. It is the *mouse-smell* sign. In some cases of this disease, the head of the patient exhales an odour quite similar to that produced by the animal, from which this symptom is named. We remember to have remarked this smell the moment we approached the person of the patient, on one or two occasions, at a remote period, when we knew not the affection which it indicated. It is also very rare, and seems to have occurred in two cases only of M. Lallemand, but is a fatal one. No instance in which it took place has been known to recover. Lastly, the constitutional symptoms attending this malady, are very similar to those said to pertain to adynamic fevers. We trust that this will not be forgotten by those whose interest it is to remember it.

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* Rostan, loco citat., p. 15.

To the subject of causes, we fear, our present limits will not allow us to do any justice. They are enveloped in obscurity, and the little that has been learnt, requires to be submitted to investigation, and illustrated with more copious and accurate observations. Of those circumstances, which, in being common to several or many individuals, are generally believed to predispose to the formation of disease, if the influence be real, it is by no means easy to reduce it to exact or unequivocal terms. The experience of M. Rostan has hitherto recognised the pulpy destruction among old subjects only; and, though physician to an extensive department of Paris, where a most numerous population furnishes patients of both sexes and of all ages, he has only once met with an uncertain instance of the disease in the person of a man of 30; and, as examination was not permitted, he regards it as of no force. The cases of Dr Abercrombie, on the other hand, occurred in individuals of very different ages; and if reliance be placed on the tabular view of M. Lallemand, we perceive that, though the proportion is small in the early period of life, the disease is not unknown, and in the period between 20 and 30, it is actually considerable, and is nearly equal to one-sixth of the whole. Of forty-three cases, thirty-one occurred in persons above 40, and twenty-seven in persons above the 60th year; yet the frequency of the disease is by no means in direct proportion to the advancement of age; for ten of these cases occurred in persons between the ages of 50 and 60, and only two in individuals above the 80th year.

Of the connexion between the sex, habit, and temperament of patients and this affection, nothing has been ascertained.

A morbid state of particular organs has, in several instances, been associated with this malady; but whether this circumstance can operate as a disposing or exciting cause, or both, we are unable to discover. Aneurismatic dilatation, and hypersarcosis of the heart, have in two or three cases evidently favoured the formation of the pulpy destruction; and in most of the instances, disease in the arterial coats of the brain has been observed to be connected with it.

The operation of circumstances peculiar to individuals, is involved in difficulty and uncertainty; and the morbific power of agents, the influence of which is neither uniform nor general, may give scope to eloquence and ingenuity, but can rarely be made the subject of useful precision, or exact and positive knowledge. Among the circumstances remarked by our authors, as favourable to the development of the malady, various moral causes, as violent passions, domestic calamities, and the melancholy and distressing sensations to which they give rise, considerable or long-continued mental efforts, night-watching, and intemperance of various kinds, are noticed as of some consequence. It is evident that such circumstances can be admitted, neither as predisposing or exciting causes exclusively, but act occasionally in both capacities. When such agents continue to operate for a considerable time, they induce a condition of the system which may justly be deemed a disposition, which the slightest augmentation of their own action, or of any other external cause, will immediately convert into active disease. If this convince our readers of the difficulty of distinguishing these agents into disposing and exciting, it will also furnish us with a sufficient reason for declining to enter into any consideration of their influence. The inquiry, which must terminate in uncertainty, however important, must be useless; and we must reluctantly defer, till a period more fertile in precise information, and more distinguished for just views of the relation between morbid actions and the external causes from which they originate, the examination of a subject eminently important, where precaution is more fortunate than remedy.

A single observation on the therapeutic principles which must regulate the treatment of this disease, will conclude our present thoughts. If the anatomical history have been rightly traced, and the pathological principles be correctly established, it is obvious, that, to be adequate to the danger and obstinacy of the disease, the means must be positive and energetic, and, to be successful, they must be prompt and seasonable. Treatment which is either moderate in degree, or ambiguous in effect, must be equally injurious; the danger of the early stage, the only one when the precepts of the physician can be useful, is urgent but not overwhelming, and should therefore be opposed by measures proportionally vigorous; the process and its results are certain, and can never be expected to cease spontaneously, or be controlled by natural means. All doubtful remedies, therefore, should be discarded, not only because they cannot influence the morbid process itself, but because their employment necessarily consumes that time, which is much better occupied in using those of positive efficacy. This is so much less excusable, as a knowledge of the general pathology of disease will show, that a certain remedy for the early stage is to be found in the vigorous adoption of every part of the antiphlogistic regimen. Blood-letting, general and topical, carried to such extent, either in quantity or by repetition, as the symptoms indicate; active administration of cathartics, low diet, abrasion of the hair, and the local use of ice, cold water, or moistened cloths, are the individual means by which this plan may be most effectually carried into execution. Blisters to the scalp, or its vicinity, may be useful, not as stimulants, which is absurd, but as counter-irritants, or agents to induce a transference of morbid action. Their use however prevents, in some degree, the effectual application of cold,—the most powerful local remedy, we are satisfied, next to topical bleeding. In more advanced forms of the malady, the effect of these means may be rendered more powerful and permanent by the local application of issues or setons of various size. It is impossible to bestow a thought on this part of our subject without the most painful feelings of disappointment and regret, at the dissimilitude of French pathology and French therapeutics. We cannot speak harshly or censoriously of physicians, to whose observations and inquiries we undoubtedly owe much; but the remedial measures prescribed in the reports before us furnish much matter for blame, and none for imitation; and their perusal will not afford the reader examples of rational or of efficient practice. The bloodlettings are evidently, in the small number of cases in which they were employed, too limited to exercise any effect on the morbid process. The remedies employed to act on the intestines, are inert and absolutely ridiculous; and the uniform order of the vegetable ptisan and the *lavement*, in cases which required repeated doses of the gum-resins, and neutral salts, will be matter of astonishment to some, and of contempt to many. Of other curative measures recorded in these reports, the principle is either absurd or unintelligible; and we cannot discover the shadow of a reason for the sinapisms to the feet and legs, or the frequent administration of camphor, valerian, arnica, and other inert or injurious medicines. The shocking practice of putting a patient in such a state in a strait waistcoat, which was done in two of M. Rostan's cases, cannot be sufficiently reprobated. The intellectual aberration, for which this cruel proceeding was resorted to, is not, as in insanity, a primary affection, on which the practitioner must act directly. It is symptomatic of a morbid state of the brain, which must be removed before the correct train of thought can be restored; and the influence, which forcible restraint exercises on this morbid state, is either negative, or so injurious as to aggravate instead of alleviating the disease. Whenever the fury or mental alienation of such patient demands constraint, it will be always most easily accomplished by copious and repeated blood-letting, and the unremitting cares of an attentive and vigilant nurse. May we hope that sound pathology will be at length succeeded by its natural result,—curative measures which, without being rash or wantonly severe, may be decided, judicious, and effective.

## II.

*A New View of the Infection of Scarlet Fever, illustrated by Remarks on other Contagious Disorders.* By WILLIAM MACMICHAEL, M.D. F.R.S. Fellow of the College of Physicians, Physician Extraordinary to H. R. H. the Duke of York, and one of the Physicians of the Middlesex Hospital. London, Underwood. 1822.

This publication will not detain us long. It consists of 100 pages; and the author does not enter upon his subject until the 54th. But even what remains is more than enough for the exposition of the asserted new view of the contagion of scarlet fever; for it might have been all comprised in a single sentence.—Most individuals have scarlatina once in their life, though often in so slight a form as not to be recognised; and therefore mothers should expose their infants to the contagion under favourable circumstances.—These ideas, which are any thing but new, he repeats in two or three different places.

" Small-pox and measles being found to be diseases that are almost inevitable in the present state of society, it is natural that mothers should be anxious and desirous that their children should have passed through these formidable disorders. All anxiety about the first of these complaints may be considered now as nearly set at rest by the practice of vaccination ; to receive the other, children are prepared by medicine, and exposed to the infection at favourable times, and when a mild sort of measles is prevailing. But as to a scarlet fever, the very name of it inspires so much dread, and so many people pass through a long life without ever having experienced, AS THEY ASSERT, the disease, that it is avoided with every imaginable precaution.

" The symptoms of the small-pox, as well as those of the measles, are so obvious, and so decided in their external appearance, that little or no doubt can exist as to the fact, whether a person has undergone these diseases or not ; but scarlet fever is so various in its character, and there is one form of it so extremely mild, that it does most certainly sometimes pass through the system unobserved, and in many more instances under the name of a *rash*, exciting no alarm, and requiring no medical treatment." pp. 56–58.

And also—

" Parents considering the measles as a disease almost inevitable, have wisely chosen to expose their children to the contagion, at such auspicious times, so that the disorder may be once well over, and all further anxiety at an end. It will be my present purpose to prove, that the same practice should be followed as to scarlet fever, a name that sounds so fearfully in the ears of mothers." pp. 30, 31.

It would appear that, in *one* instance, he put this idea into practice.

" On one occasion, a mother who brought her child with the complaint seemed alarmed, and anxious about the numerous family she had at home, who all ran the greatest risk of infection. I advised her to take no means to prevent their free communication with the patient, but rather to insure, if possible, their catching the disease." p. 82.

But we are not informed of the result. As to the originality of the idea, our author has no right to it whatever. Reil, in his posthumous volume on Febrile Diseases, published in 1815, mentions the propriety of exposing young children to the infection, when the disease is mild, as a practice to be enforced by the medical police, without claiming it as a discovery. This distinguished and lamented ornament of our profession, after stating that the prophylactic means either regard the whole population, when they fall under the jurisdiction of the medical police; or regard individuals, when they remain with the medical attendant, proceeds to explain, in detail, what is to be done. The police regulations, he says, must be directed to prevent and diminish infection, when the disease is of a malignant nature; but, until we have learnt how to inoculate scarlatina, "care should be taken that children be infected by it when it is of a mild nature, and they are not beyond the years of childhood."—*J. C. Reil, Ueber die Erkenntniss und Cur der Fieber, 5ter Band Exantheme, 8vo. Halle,* 1815, *p.* 146.

Lest it might be possibly suspected that the illustrations and arguments were of more value than the conclusions of our author, we shall analyze the whole of what he has said of scarlet fever. Before the sentence we have first quoted, the following observations occur.

"One of the most remarkable circumstances connected with contagious diseases, is the property which some of them possess of attacking each individual once only in the course of his life. A change is thus wrought in the system, which is not evident to the senses, and it is remarkable that the same change is produced, in however slight a degree the morbid affection may have been experienced.

"In one instance, we have recently found that the change alluded to, is capable of being brought about by the occurrence of a different disease; one morbid affection, in this manner, being able permanently to alter the condition of the body, so as to render it insensible to the operation of another contagion. I allude to the protecting power of vaccination against the infection of small-pox.

"It has before been observed with regard to measles, that there is a considerable range of character in the disease: in one season it will be slight, in another severe, and at other times hold a middle course. It is usually mildest in summer, and most severe in winter and spring. In consequence, one of the ordinary cautions about preparing children for the reception of the measles, is in *unfavourable weather* to guard even strong children against exposure to cold, and to keep their bowels open, prior to infection. In other words, we are to endeavour to bring about, by artificial means, that state of body which sometimes exists spontaneously in a large portion of the community.

"Dr Willan, speaking of scarlet fever, remarks, 'that according to the state of the air, the soil, climate, or season of the year, one form predominates over all the rest, and gives the general character to every epidemic scarlatina.'

"His attention seems to have been directed chiefly to the state of the weather, and he drew no inference from the above observation, but left it, as a simple matter of fact, which afforded no practical deduction." pp. 54–56.

These paragraphs, with that first quoted, occupy one twenty-fifth of the whole book. Of their value we leave our readers to judge; but we cannot pass unnoticed his censure of Dr Willan, for not drawing any practical conclusion from a fact from which he himself has drawn none that was not before generally known, and often acted upon. But our author is exceedingly fond of adopting the most trite conclusions as peculiar to himself. The very next paragraph furnishes another instance. "No satisfactory reason has hitherto been given, why a disease so contagious as scarlet fever is well known to be, should not be as general in its attacks as the measles."

"The discerning Sydenham says, speaking of this disease, 'Infantes verò præ ceteris infestat.' And it is a common observation, that old people are not so liable to catch the scarlet fever as young persons. But the most natural and most obvious explanation of this fact is, that persons advanced in life have already had the disease; for this immunity from contagion is not observed to hold good with respect to typhus fever, but only to be true of those diseases which are experienced once only during life. The very use of the word *infantes* is in support of my opinion. Children in arms are most liable to catch the infection, for the simple reason, that many boys and girls eight or ten years of age may, like older people, have undergone it before, but in so slight a manner as to escape observation.

"It is upon the truth and accuracy of these remarks that the whole value of what I would wish to inculcate, in the following pages, must entirely rest." pp. 58, 59.

We are next told, that when scarlet fever appears in public schools, it is often concealed; and here our author will gain the good report of all the boarding-school masters and mistresses, whose interest will no longer be injured by letting the truth be known.

In page 60, our author touches upon an important question, whether an individual can be infected oftener than once by scarlatina; which he settles very easily, by doubting the accuracy of Willan in discriminating cutaneous affections, and by giving a decided opinion, where Heberden wisely doubted. Speaking of *rubeola sine catarrho*, our author says—

—"That such a variety ever exists, is very questionable; and when it is recollected that the measles and scarlet fever are generally epidemical at the same time, it is much more probable that, in the cases described by him, the eruption was that of mild scarlet fever, which, of course, affords no protection against the attack of measles." p. 64.—"There is also another opinion advanced by Dr Willan, which I should be much disposed to call in question; viz. that scarlatina is sometimes not completely formed, but appears with some of its symptoms only." pp. 65, 66.—"As little confidence should I place in the assertion, that when persons have once decidedly had scarlet fever, they are liable, on being exposed to its contagion, to suffer *one* of its symptoms, a slight sore throat, for example." p. 67.

Indeed our author treats the most distinguished of the profession without ceremony, and disbelieves or believes their statements, without pretending to advance any facts or arguments. Take, for example, the following paragraph.

"The small-pox occasionally recurs, but certainly such an accident is rare; and the assertion lately made in a treatise on that subject, must surely be hasty and inaccurate. It is quite incredible that out of 836 cases of small-pox, which Dr Thomson saw in the interval from June, 1818, to the time of the publication of his work, in 1822, seventy-one should have previously passed through this disease. This proportion is more than one in twelve: if such indeed were the fact, we ought no longer to speak of secondary small-pox, as one of those anomalies observable in some peculiar constitutions, which baffle the skill of the most experienced physician." pp. 28, 29.

It is amusing to us, who know the indefatigable industry of Dr Thomson, and it must surprise all who have perused his work, replete, almost overloaded, with research, to find hasty assertions imputed to him by the author of such a publication as that before us. None of our readers will accuse us of having hastily adopted Dr Thomson's views, nor are we yet convinced that there is no such existence as *varicella*, a disease *sui generis*; but we are perfectly satisfied, from our own multiplied experience, and from the numerous reports of our correspondents, some of which we have declined publishing as superfluous, that secondary small-pox is not much less common than Dr Thomson represents it to be, and that the great majority of cases of reputed *varicella* are modified *variola*. Having thus arbitrarily denied the fact in regard to one of the most important and best known of the exanthematous diseases, it does not surprise us to find our author making use of the analogy of other exanthematous diseases, to suggest that Dr Willan did not know scarlatina when he saw it.

"It is much more probable, that in the cases above described, the patients resisted it altogether, and had some other ailment, than that they should have experienced a sort of half-formed scarlatina. Such an occurrence is contrary to what we observe in other similar discases, and is, perhaps, quite fanciful; for we know from observation, that in contagious disorders, the same change is wrought in the system, in however slight a degree the morbid affection may have been experienced." pp. 66, 67.

On the contrary, we will venture to assert, that Dr Willan's idea of a half-formed scarlatina is perfectly conformable to what we perceive in other similar diseases, as *rubeola sine catarrho*, for example, or imperfect vaccination; and that we know, from observation, that the same change is *not* wrought in the system, when the morbid affection is experienced in a very slight degree only.

He then contends at some length, and we think successfully, that it was really a mild form of scarlatina which Dr Maton described, in the 5th volume of the Transactions of the College of Physicians, as a non-descript disease.

In refuting Dr Maton's argument, that the disease he observed was not scarlatina, derived from 14 days and upwards having elapsed after the first cases occurred in the family in which the observation was made, before the next cases appeared, our author very properly states, that "these are well authenticated cases of an interval of fourteen days elapsing, and this when the patient has been exposed to the infection of the most decided and well characterized scarlatina." But this statement is not strong enough; for there are very few instances in which a second case of scarlatina appears in a family in less than fourteen days after the first. Nor is this statement inconsistent with Dr Willan's assertion, that the sixth day is the latest period intervening between the application of the infection and the commencement of the disease; for neither Dr Maton nor our author seem to have adverted to the fact, that the contagious matter, by which such diseases are propagated, is the last product of the morbid action, as the perfection of fertile seeds in vegetables, or the impregnation of the female, and the deposition of eggs by many insects, is the last act of life. Scarlatina is not capable of propagating itself for about seven days after it is first recognised; but it continues capable of propagating itself for a considerable time afterwards, perhaps during the whole period of desquamation; and we entertain no doubt that Dr Maton's two first cases, Miss F. and Miss K., who were taken ill on the 17th and 18th August, derived their infection from the same source, and at the same time; and that the next four of the family were infected from them at the regular period, after the application of *ripe* contagious matter, and the two last from some of the second set, as soon as the exhalation from their bodies was capable of communicating the disease. In concluding this, the essential chapter of his book, our author thinks proper to "just enumerate the leading symptoms of the more aggravated form of the disease," p. 83.

Chapter fourth contains the treatment of the different forms of scarlatina, and recapitulation. The former of these topics we might pass over, as the author commences by saying—"on the subject of the treatment of scarlet fever I have nothing novel to propose," were it not for the last sentence, which we confess we do not understand.

"I think that I have seen lately a case of genuine and well-marked scarlet fever, with slight sore throat, great heat and redness of skin, followed by desquamation of the cuticle, treated by copious bleeding, as well local as general, and considered as an inflammatory disease, arising from a disordered state of the digestive organs." p. 96.

Does he mean to express a doubt whether he saw the case; or whether it was genuine and well marked scarlet fever; or whether it was treated by copious blood-letting; or whether it was considered as an inflammatory disease? For all these meanings are equally implied by his words, and equally improbable to be their real import. But as he seems to think that it is a very singular practice to treat scarlatina with copious blood-letting, and as others equally unacquainted with the present practice, may have the same opinion, we gladly take this opportunity of asserting, from considerable experience, that copious blood-letting is the best remedy in severe cases of *scarlatina anginosa*, and that the greater the tendency to malignancy is, the more boldly must it be employed. This change in the treatment of *scarlatina maligna*, has naturally followed that of its congener *typhus*. The first antiphlogistic means used in both, was cold effusion, then purgatives were employed, and lastly, venesection, as the most efficient of all, though not always necessary.

Of the first half of this volume we shall only say, that we think it has very little connexion with scarlatina; in proof of which, and that our readers may know of what it treats, we copy the author's summary of its contents. *Chap. I.* Improved Value of Life—Increase and Decrease of certain Diseases—Causes of Epidemic Diseases—Pellagra—Ergot—Malaria. pp. 1–24. *Chap. II.* Contagion—Small-pox—Hydrophobia—Measles—Epidemic Constitution—Origin of the Infection of Typhus Fever—The Plague. pp. 24–54. On none of these subjects does our author write from observation or experience, and on none of them does he advance an opinion, which we think worthy of being quoted or controverted, although he commences his dedication to the President of the Royal College of Physicians, by stating that he has "ventured, in the following pages, to advance some opinions of rather a novel nature, which will probably be open to many objections."

We should almost apologize to our readers for criticizing this work, when so many of greater merit remain unnoticed; but precedence is due to the dignitaries of the profession.

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## III.

1. *Considerations Médico-Légales sur l'Infanticide.* Par A. Lecieux,* D. M. &c. à Paris, 1818. pp. 80.
2. *A Dissertation on Infanticide, in its Relations to Physiology and Jurisprudence.* By William Hutchinson, M.D. F.L.S. 8vo. pp. 99. London, 1820.
3. *La Médecine-Légale relative à l'Art des Accouchemens.* Par J. Capuron, D. M. &c. à Paris, 1821.

There is not to be found, perhaps, in the whole range of medical science, a more lamentable example of the fluctuation of its doctrines, and the incongruity of its fundamental facts, than in the pathological inquiries which constitute the foundation of medical evidence on trials for Infanticide. It is now above a century and a half since these inquiries were first set on foot, and during that period, they have occupied the attention of the most eminent pathologists, both in this country, and still more on the Continent; yet the signs of infanticide continue to the present day enveloped in their original obscurity; and medical witnesses are still harassed with doubts upon the very same questions which were agitated in the time of Bohn, Heister, and Alberti.

It is not easy to account for the ill success which has attended the labours of so many distinguished men upon matters of mere fact, at first sight not very difficult of determination. But, we believe, it may be ascribed in a great measure to their inquiries having been often instituted on the occasion of particular trials, when the object was not so much to investigate the truth, as to throw a veil of doubt over the existing doctrines. Each successive author appears to have been satisfied with simply discovering facts hostile to the statements of his predecessors: at least, it was not till recent times that any attempt was made to reconcile these contradictory facts by examining their collateral circumstances, or to render them nugatory by showing how the juridical physician might foresee and avoid, or make allowance for them.

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* This treatise is one of four Theses on medico-legal subjects, published together by four pupils of Professor Chaussier, and understood to be expositions of the doctrines of that distinguished author, although not expressly sanctioned by his name.

In our own country, another cause has tended to prolong the indecision of medical men with regard to the certainty or uncertainty of the signs of child-murder. To avoid the numerous fallacies with which they are beset requires so much previous knowledge and so patient inquiry, that the witnesses—often not the most eminent in rank or acquirements, and notoriously indifferent as to their medico-legal duties in general—appear very happy, if we may trust the reports of some recent trials, to get rid of all their embarrassment, by denying that an inquiry could lead to any certain or useful conclusion. The hesitation of medical witnesses, indeed, has of late been so frequent, that, in direct opposition to the practice which prevailed before the appearance of Dr Hunter's well known Essay, our courts of law will hardly give credit to the crown evidence, unless in the very simplest cases; nay, it is not long since one of the highest legal authorities in England, publicly "congratulated the profession on their having at last abandoned that scientific humbug, the hydrostatic test."

It is high time, therefore, for the votaries of legal medicine, to assert and uphold its rights thus invaded in its infancy. And we could have wished, that Dr Hutchinson had assumed the office, to which his previous reception with the public justly entitled him, of admonishing his brethren as to these errors, and informing them in explicit terms, what degree of reliance may be placed on the signs of infanticide, when fully and scientifically investigated. For we are satisfied, from the contents of his work, that he agrees in opinion with every recent authority of repute, and, in particular, with the doctrine invariably maintained by the professors of this School; to wit, that in ninety-nine cases out of a hundred a careful examination by a competent person will furnish positive or highly probable evidence, at least on the fundamental question, whether the child has been born dead or alive; and that it will always be able to point out in what cases the different tests are applicable or inapplicable.

In most of the European kingdoms, the early statutes against the crime of infanticide, were most barbarously severe. An edict of Henry the Second of France, in 1556, punished with death every unmarried woman who concealed her pregnancy, or caused the death of her child; and though it was a sufficient obstacle to conviction, that the child was immature or still-born, yet little advantage thence accrued to the prisoner, as the burden of proving these points was thrown upon her. Towards the close of the subsequent century, the crime became alarmingly prevalent in Britain; and, in consequence, the sanguinary edict of Henry of France was transferred to the criminal code of this country. An act passed in the reign of King James the First, obliged the jury to convict upon presumptive evidence; which consisted merely in the proof of concealment of pregnancy, of neglect to call in aid during delivery, and of the death or disappearing of the child. This act continued in full force for eighty or ninety years; but at last it became customary to require some more positive proof of homicide; and in this part of the kingdom, if the circumstances were at all favourable, the prisoner, on her own petition, was simply banished from Scotland, or received some milder punishment. In 1809, the crime was subdivided. The crime of child-murder, as constituted by the old British statute, is now known as that of Concealment of pregnancy, and punished with imprisonment, not exceeding the period of two years; while to convict a woman of child-murder at present requires the same direct proof of wilful violence as in charges of ordinary homicide. In 1810, the same change was effected upon the French Penal code. The crime of "*suppression de part*" is equivalent to concealment of pregnancy on the British statute; and, in common with *substitution* and *supposition* of an infant, is punished with imprisonment.

To establish the crime of concealment of pregnancy, Mr Hume observes, that the child must be mature; since it would be unreasonable to presume, that a woman, because she conceals her state in the early months, would continue to do so till the completion of her delivery. The prosecutor, however, is not obliged to prove that the child was mature; for in that case, as the point could be hardly ever established without an examination of the body, the statute would not reach those numerous cases, in which the body of the child is not to be found. On that account, although it is a valid defence that the child was immature, the burden of proving its immaturity is thrown upon the prisoner. It has not yet been determined, whether the charge of concealment of pregnancy may be repelled, by proving that the child was still-born. But Mr Hume justly remarks, that it may have died in the passages, owing to the mother's neglect in procuring aid,—the very offence against which the statute is directed.

But, in truth, the crime of concealment of pregnancy is rarely made the subject of prosecution, and never punished to the full extent of the statute, unless in the cases in which murder also is suspected, but cannot be proved.

On considering these statutes, it is obvious that the following are the fundamental questions, which may be laid before a medical witness for his opinion.

1. Has the prisoner been recently delivered?
2. Was the child mature?
3. Was it really the child of the prisoner?
4. Was it born alive or dead?
5. In either case, what was the cause of its death?

Of these questions, the three first may occur in trials for concealment of pregnancy; and all may enter into prosecutions for child-murder.

The fact of recent delivery is for the most part established by moral evidence; for, in truth, unless such evidence exists, no one is likely to suspect that any crime has been committed. The third question, whether the child is really that of which the prisoner has been delivered, is also generally settled by moral evidence. Both of these points, however, ought to be uniformly made the subject of medical investigation, if the case comes early enough under suspicion. For, considering the nature of the crimes, the prosecutor or the prisoner will be often furnished in this way with more positive evidence, than can generally be expected from the ordinary testimony of other witnesses. The other three questions regarding the maturity of the child, its existence after birth, and the cause of its death, must always be determined by medical inquiry; for no case is likely to become the subject of prosecution, in which any person has been present at its birth or death.

Before proceeding to discuss these questions in their order, it may be right to supply a deficiency in Dr Hutchinson's treatise, relative to a preliminary inquiry which at one time was much agitated and still retains some interest, though it hardly ever occurs in our courts, to wit, whether a female can be ignorant of her pregnancy till the child is brought forth. There are manifestly three conditions required before we can believe such a thing possible; viz. that impregnation take place without her knowledge; that her pregnancy imitate some natural disease; and that her delivery be accomplished either suddenly, or without her knowledge. Without discussing these conditions minutely, we shall mention why we consider each of them to be possible.

A female may be impregnated without her knowledge, during natural sleep, if she be not a virgin, and in every circumstance during the profound sleep induced by narcotics. Desgranges of Lyons knew a young girl who was deflowered during the horrors of the Revolution, while she lay senseless under the effects of opium; and thus became pregnant with the consciousness of un-spotted innocence. But even though the individual be conscious of having exposed herself to become pregnant, her suspicions as to her state may be lulled asleep, because she trusts to certain precautions, whose efficacy, we have reason to know, is pretty generally relied on by the lower ranks. These it is unnecessary to detail. The most remarkable example of ignorance arising from this cause, is the story often quoted by medico-legal writers from Desgranges, *puellæ cujusdam stolidæ, quæ amanti suo "eam sub aqua coëuntem non concipere posse," persuadenti credens, hoc modo revera succubuit;* and continued to deny the possibility of her pregnancy even during the tortures of delivery.

The second condition is, that the pregnancy imitate some natural disease, such as *hydrometra* or dropsy of the uterus. The annals of medicine furnish many examples of pregnancy in married women having on this account eluded the observation, not only of the women themselves, but even of the most skilful accoucheurs; so that no one need wonder or deny that it can also escape the notice of an ignorant and inexperienced girl.

The third condition is, that her delivery take place suddenly, or without her knowledge. It may take place without her knowledge, because she has been rendered insensible with narcotic drugs, or by fever, apoplexy, asphyxia, or similar disorders. Or it may take place so suddenly, as to be completed before she can call for assistance;—an accident which would be quite equivalent to unconscious delivery in repelling the charge of concealment of pregnancy. It would be unnecessary to notice this accident more particularly, if Capuron, in enumerating the causes of concealed delivery, had not unaccountably omitted it.

"Can it be imagined," says he, "that the womb shall contract, its orifice open, the vagina and vulva be dilated, and sometimes torn in giving passage to an infant, without exalting the vital properties, agitating the whole frame, and causing torture to the woman? Though parturition is an involuntary act, can it on that account be also an insensible one? It never can be so except when the female is deranged, or plunged in drunken stupor, or struck with apoplexy, or labouring under suspended animation." p. 129.

Notwithstanding this decided opinion, delivery may without doubt take place so suddenly, that the female is unable to call for assistance before it is completed; nay, some women have been delivered, as it were, upon the spot. In the 8th volume of the Medical and Physical Journal, the case is noticed of a lady, who, being attacked with diarrhœa towards the close of pregnancy, was one day seized on the night-stool with a labour-pain, and in a short while brought forth a child, before she was able to rise and give the alarm; and a still more remarkable case will be noticed towards the close of this review. So sudden a delivery, however, can only happen to a person who has borne children before.

These remarks render it obvious, that a person *may* be delivered without being previously aware of her pregnancy. But since each of the three requisite conditions is exceedingly rare, we may justly pronounce it to be barely within the bounds of possibility, and only to be credited in individual cases, when the female gives sufficient evidence that the conditions in question did actually exist. Farther, as the third condition can exist only in the case of those who have borne children, the plea of ignorance must necessarily be excluded from the greater number of trials, which too generally concern those who have erred for the first time.

I. The question with regard to the recent delivery of the prisoner, it has already been observed, is generally determined by moral evidence, but admits of signal elucidation from a medical inquiry. The signs of recent delivery are thus elegantly summed up by Capuron.

" Weakness; paleness of the countenance; dulness of the eye; sinking and bluishness of the eyelids; relaxation of the skin of the belly, with folds, and streaks, or wrinkles on it, especially near the pelvis; a dark line betwixt the pubes and umbilicus; separation of the linea alba; extraordinary dilatation of the vulva, with contusion, inflammation, or at least redness; swelling and pain of the external parts; frequently a fresh and bleeding laceration of the perineum, or consecutive suppuration; unnatural width of the vagina; swelling, suppleness, and irregularity of the os uteri; the discharge of a bloody, serous, or puriform fluid, possessing the peculiar odour of the lochia; after-pains; the great size of the uterus, which may be felt above the pubes, especially if the finger be introduced into the vagina, while the other hand rests on the hypogastrium; the milk-fever, terminating in an acid sweat; swelling of the mammæ, and the secretion of a serous fluid from the nipple, staining the shirt, or other articles of dress." p. 124.

Much importance is attached by the Courts in France to the professional inspection of the prisoner; for Capuron informs us, that, so lately as 1809, a woman was acquitted because the inspection had not been made till a month after the supposed date of her delivery. All the recent continental writers on this subject agree, that it must be set on foot within ten days, otherwise it cannot lead to any sound conclusion, as the most important of the signs disappear towards the close of that period. They likewise all coincide in opinion, that if the signs already related be all, or nearly all, found in the person of the prisoner, the conclusion is infallible; and that, whatever a few obstinate accoucheurs may have been urged by the spirit of contradiction to allege, they are never imitated conjunctly by any disease whatsoever. This opinion is particularly expressed by Professor Chaussier, and likewise by De la Fosse, in the Encyclopédie Méthodique. At the same time, a just and necessary caution is added against placing reliance on any one sign, or even on several of them together, since frequent experience has shown, that, though never found conjunctly but after delivery, they are often produced individually by other causes.

II. The *second* question that may occur, in trials for infanticide and concealment of pregnancy, relates to the maturity or immaturity of the child. The best defence, perhaps, to which the prisoner can have recourse, when really innocent, is the immaturity of the child; for it can always be satisfactorily established by examination.

It is chiefly the changes which take place betwixt the close of the sixth and ninth months, that should be familiar to the juridical physician. The circumstances which attend delivery at an earlier period are almost always of such a nature as lead, in suspicious cases, to the woman being charged with a different crime, that of criminal abortion: a crime of great importance to the medical witness, but which must be left out of view at present.

The criterions from which we are to determine the degree of maturity of the child, are derived from its length, its weight, the proportional length of its parts, the state of the skin and its appendages, of the pupil of the eye, of the internal viscera, especially of the abdomen, of the organs of generation, of the brain, and, lastly, from the progress of ossification in the vertebræ. As to the length and weight of the body, these furnish very uncertain tests, since they vary much in different infants. But Professor Chaussier has pointed out an excellent criterion, in the comparative length of its several parts at different periods. "If, in a well-proportioned adult, a line be drawn from the top of the head to the heel, its centre corresponds with the upper edge of the pubis. But, in the fœtus, this point is situated much higher; for, in a ripe child, it corresponds with the umbilicus, or a point a little above it; at the end of the eighth month, it is two or three centimetres higher, [*about an inch*]; at the end of the seventh month, it is still nearer the sternum;" p. 18.: and at the end of the sixth month, it falls just on the end of that bone. The tests taken from the state of the skin, eye, abdominal viscera, brain, and organs of generation, are succinctly and elegantly related by Dr Hutchinson (pp. 8—12), to whose work we must be content with referring the English reader. It is but fair to observe, however, that every clause of these four pages will be found, with a slight difference as to arrangement, in the Thesis of Chaussier's pupil, (pp. 14—21); and as the agreement is too complete to have arisen from accident, it would have been more prudent had Dr Hutchinson referred to his authority. The passage, as it stands at present, would imply, that all it contains on the anatomy of the fœtus at different periods, is drawn from his own observation. The only part of Professor Chaussier's remarks we shall quote, relate to the development of the brain and its appendages. Before the sixth month it is semifluid, uniformly white, without convolutions; in the seventh, the medullary matter is redder, the cortical still white, and the grooves of the convolutions begin to appear; and at the full time, the cortical substance is greyish, and the convolutions are distinct. The pia mater, at the sixth month, does not adhere, as may be conceived from the want of grooves; but it begins to be connected at the close of the seventh month, when the convolutions first show themselves. To the observations of Professor Chaussier some useful tests may be added, from the recent discoveries of Tiedemann and of Serres on the development of the brain in the fœtus. Thus it appears, that the corpus callosum in the sixth month is only half as long as the hemispheres of the brain; the tænia semicircularis infundibulum and choroid plexus are formed in the seventh; the corpora olivaria do not protrude till betwixt the sixth and seventh; but the corpora pyramidalia are fully formed a month sooner; and in both, the protrusion is owing to the development of cineritious matter in them; it is not till near the very end of pregnancy that the cineritious substance is formed in the spine, or even very manifestly in the convolutions of the brain and cerebellum; but it exists from a very early period in the corpora striata and optic thalami.

The most infallible signs of the maturity or immaturity of the child, are perhaps those relative to the progress of ossification, which Dr Hutchinson has quoted from the researches of Professor Beclard. Each vertebra is in general formed by three primitive points of ossification—an anterior one, which forms the body, and two lateral ones, constituting the apophyses; and each vertebra is, besides, completed by several secondary points, &c. In the sixth month, two points are found in the second cervical vertebra, one situated above the other. Towards the seventh, the superior is larger than the inferior point.

In the eighth month, the transverse processes have begun to ossify in the first lumbar vertebra. At the time of birth, ossification has commenced in the body of the atlas, and the first bone of the coccyx; the body of the fourth or largest lumbar vertebra is three lines thick and six in breadth; and the lateral portions of the six inferior dorsal vertebræ begin to unite, so as to form a ring posteriorly.

III. The *third* question, Whether the child found really belongs to the prisoner?—is one of much greater importance than medical witnesses generally imagine. In truth, although they may often be unable to return a satisfactory answer to it, the requisite inquiry should be instituted in every case of concealed pregnancy, or infanticide. The point is sometimes settled, indeed, by moral evidence. But as this is, for the most part, circumstantial only, and therefore open to fallacy, it is of consequence to try its accuracy, by referring to all other possible sources of information. A good illustration of this remark occurred in London last November. A girl was apprehended for supposed infanticide, and her child carried to a neighbouring Workhouse till the Inquest should be held upon it. A surgeon, who examined the body two days after delivery, declared there were no marks of external violence upon it, and that it was in such a state of putrefaction as rendered an internal examination useless and unnecessary. The Jury were accordingly on the point of returning their verdict *Found dead*, without surveying the body, when the Coroner reminded them of this part of their duty. On proceeding to view it, they discovered that the body examined by the surgeon was that of a child who died five or six days before in the Workhouse. * Professor Fodéré informs us, that he has known instances of women who had miscarried at an early period of pregnancy, yet, owing to a similar mistake, were declared the mothers of children born at the full time, and actually suffered death in consequence.

This question is to be answered, by comparing the state of the child with that of the prisoner. By examining the prisoner, or from moral evidence, the witness will first learn when she was delivered, and what was the nature of her labour; and the conclusion at which he arrives is then to be compared with the marks on the child's body of easy or difficult labour, and with the signs which point out the date of its birth.

The progressive changes which a female undergoes after delivery, are related in every work on midwifery, and will probably be familiar to those who may have to investigate cases of infanticide. We may merely mention, that the most precise criterions of the date of her delivery (though they cannot be trusted to individually) are derived, according to our authors, from the date of the milk-fever, the gradual alterations of the lochia, and especially the appearances assumed by the generative organs in their return to their ordinary healthy condition. We must refer to the same sources for the means by which the nature and the probable duration of the labour are to be ascertained.

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* Morning Chronicle, November 23d.

The date of the child's birth is then to be settled; 1*st*, By determining the date of its death, *i. e.* whether it died in the womb, in the passages, or after birth, and how long afterwards; 2*dly*, By ascertaining what period has elapsed after its death. Of these points, we shall only notice at present the criterions for determining how long it survived birth, and how long it has been dead. The rest will be considered under the next question. The first point is to be determined by considering "the state of the skin, umbilical cord, internal organs and lungs. When the skin is soft, reddish, unctuous, and covered with its peculiar sebaceous coat; when the umbilical cord is soft and spongy; when the stomach contains only a little mucus; when the great intestines are filled with meconium, and the bladder with urine; these signs, united with those of respiration, will prove that the child died very soon after birth. But if the umbilical cord is withered, dried, detached partly or altogether from the umbilicus, and surrounded with a reddish areola, or a commencing cicatrix; if the epidermis separates in scales; if the stomach contains aliment, and the great gut little or no meconium; the child has certainly lived some time, and the precise period may be settled approximately by any one accustomed to observe these indications."—*Lecieux*, p. 33.

To determine the period that has elapsed since death is not so easy; yet a probable conjecture may be formed by attending to the following circumstances. The shrivelling of the eye, the flaccidity of the muscles, the swelling of the integuments, and the signs of incipient putrefaction, will show that it has been dead for a sensible period, varying according to their intensity, and to the climate, season, soil, &c. where the body has lain. It should be particularly remembered, that, "instead of putrefying rapidly in the soil of necessaries, as is generally believed, bodies are preserved there from decay for a considerable period, owing probably to the extrication of gases which cannot support the putrefactive process."—*Lecieux*, p.61.

The fulness of the eye, the clearness of the cornea, the rigidity of the limbs, and the fresh tint of the skin will show, on the contrary, that death must have taken place within a few hours.

The body of the child furnishes various marks which indicate the manner and duration of labour, and which thus may prove, that it is or is not the child of which the prisoner has been delivered. After a first labour, that has taken place in the most favourable manner, namely, by the presentation of the head, there is always found, on the part of the occiput which first entered the passages, a tumour consisting of serous effusion and turgid vessels. If the child is unusually large, or the outlet of the pelvis narrow, there is " a broad, soft, prominent swelling, more or less elastic, and composed not only of effused serum and congested vessels, but likewise of blood extravasated under the pericranium ; the whole bones of the cranium are loose ; their uniting membranes relaxed and elongated ; nay, the head flattened transversely, or even one or both parietal bones fractured longitudinally, or in an angular or stellated form. "—(*Lecieux*, p. 27.) On the contrary, when a woman has previously had children, and the presentation is natural, the head suffers little or no injury. When the presentation is unnatural, ecchymosis will always be found on the part which presented ; and whenever it has been necessary to extract the child by the feet, " the aponeurosis of the scalp, or the tissue of the periosteum, exhibits little, lenticular, reddish spots of extravasation, especially if the head has been long detained in the passages. " By attending to these circumstances, a witness may often furnish very strong evidence upon the point in question. On the one hand, it is well known that almost all judicial cases of the kind relate to girls who have been pregnant for the first time; and on the other hand, it is seldom possible for any labour but a natural one to give rise to a criminal prosecution. Hence (having previously established, that the prisoner was never pregnant before), if either no tumour exists on the child's occiput, or the mark on the head or elsewhere is of so violent a kind as could not have been produced except by tedious or unnatural labour, a strong presumption would arise, that the child has been borne by another person. On the contrary, if it is found by moral or medical evidence, that the labour has been tedious, (for it is possible that such a case may become the subject of trial), and corresponding marks are found on the child's body, the conclusion that it is hers would be almost irresistible. Many other indications, which it is needless to mention, may be drawn by such a comparison of appearances.

With regard to the information to be derived from comparing the date of the woman's delivery with the apparent date of the child's birth, it can evidently be only approximative. At the same time, as we may easily approach within a day or two of the actual truth, it would often be sufficient to decide the question.

IV. The next question to be discussed is, Whether the child was born alive or dead? This may be viewed as the fundamental inquiry in all cases of infanticide; since there is not a more effectual way of repelling the charge, or a more frequent mode in which it is attempted, than by proving that the child was still-born. It has long been considered indeed as the chief and fundamental point to be settled by a professional examination; and in consequence it has been, till recently, almost the only subject of serious attention among medico-legal authors.

The signs by which we may recognise that a child has been still-born, are those which demonstrate that it was immature, that it died in the uterus or in the passages, and that it did not breathe, or undergo any of the other vital changes which take place immediately after birth.

1. The signs of immaturity to be discovered in the body of the child have already been considered.

2. The marks, which prove that the child must have died in the uterus, may decide the question of themselves; but not unless the date of birth is positively ascertained from other circumstances. For they are those of putrefaction merely; which of course may have taken place after birth as well as before it. A child that has died in the uterus, generally remains there from five to twenty days, and hence the putrefactive process is almost always more or less advanced before it is expelled.

" The body has lost its firmness and consistence, the members are relaxed, the flesh soft, the epidermis wanting, or removable by the slightest force, and the skin of a brownish or purple colour. Sometimes there is a sero-sanguinolent infiltration throughout the whole cellular tissue, and especially under the skin of the head; and the same kind of fluid is also frequently found in the pericardium. The membranes and viscera of the chest and abdomen, and the inner surface of the blood-vessels, have acquired a deep red tint. The umbilical cord is thick, soft, brittle, livid, and infiltered. The chest is sunken; the head is deformed, and becomes flat by its own weight; the membranous commissures of the bones are relaxed, the bones perhaps altogether disunited, and the brain even in a state of fetid fluidity.'—(*Lecieux*, p. 31.)

Chaussier adds, that instead of putrefying, the body, while in the womb, is sometimes converted into adipocire; a very rare phenomenon, which may always be readily recognised.

3. The best account of the signs and natural causes of death during labour, is given by Capuron. The causes enumerated are ten in number; but of these, six only need be noticed here; for, with regard to the rest concealment is impossible, pro-

fessional aid being required to complete the delivery. The causes alluded to are—protracted natural labour, after the head or the shoulders have arrived in the passages; premature delivery of the umbilical cord; twisting of the cord round the neck; rupture of the cord; premature separation of the placenta; and weakness of the child. Of these, the most important, because the most frequent, both in a general, and still more in a criminal point of view, is protracted natural labour. Death in that case arises, either from continued pressure of the cord, or from injury of the head; and its signs are those already mentioned, of difficult labour. (p. 459.) Death from premature delivery of the cord is not easily recognised: The child dies asphyxiated, not apoplectic, as Capuron alleges; and if the pressure is sufficient to cause complete asphyxia, no appearance of note will be found in the body. Twisting of the cord round the neck causes death by asphyxia, and is known, says Capuron, "by a circular ecchymosis round the neck, without ruffling or other alteration of the epidermis." Dr Hutchinson adds a useful sign, to wit, that the livid mark does not form a circle, but rather a spiral round the neck. It may be questioned, however, if a livid mark will always be found; for it is now well established, that very frequently no such mark is produced by the strangulation even of adults. Death, from premature separation of the placenta, or rupture of the cord, depends on hemorrhage. It may be known by the bleaching of the whole body, and the want of blood in the vessels; but these signs, of course, will not distinguish it from death by umbilical hemorrhage after birth. Lastly, the child may die in the passages from general weakness, which can only be recognised by its immaturity, or by the presumptive evidence derived from the condition of the parent during pregnancy.

It appears, therefore, that the only well-marked signs of death during labour, are found in the commonest case, when it arises from protracted natural labour. Yet even then they are not decisive. For notwithstanding the injuries inflicted, the child may be born alive, and eventually recover from their effects. The presumption derived from their presence must, on that account, be always fortified by the signs now to be noticed, which prove that the child has not breathed, or undergone any of the other vital changes, which commence immediately after birth.

4. Before the recent changes were made in the statutes against infanticide, when the only proof required was, that the pregnancy had been concealed, the labour finished without aid, and the child dead, the signs of respiration were necessarily an

object of almost exclusive attention on the part of the medical witness; and, in consequence, they have been investigated with the most scrupulous minuteness by a host of medico-legal writers. C. Frideric Daniel, in a learned work, *De Infantum Umbilico et Pulmonibus*, published at Halle in 1780, has given an abstract of the opinions and experiments of 103 authors, who had written on the subject in the course of 150 years before his time. It may readily be imagined, that such a swarm could never have been engendered without the fostering warmth of controversy. And, in fact, there hardly exists in any branch of science or literature a more singular monument of controversial arrogance, contradiction, and unprofitableness. Each disputant seems to have been satisfied, when he could deny by reasoning or experiment the statements of his immediate predecessor; and little or no importance was generally attached to the equally sound reasoning, and equally direct experiments of all those who had written before him. To such a degree was this spirit diffused among them, that when Hebenstreit, in 1753, attempted to withdraw the soul of the controversy (the effect of putrefaction on the hydrostatic test) by showing that the putrid fetal lung floated in the water in which it had putrified, but sank in fresh water, the very next year his pacific endeavours were repelled by Fabricius, who affirmed that, on the contrary, they swam in fresh water, and sank in the other. * We thoroughly believe, that a few accurate experiments conducted with proper attention to collateral circumstances, a point hitherto almost utterly neglected, would not only reconcile these and all other discrepancies, without the necessity of imputing bad faith to any previous experimenter, but would likewise show, that with a few simple precautions, the static, hydrostatic and other tests may be applied in every case with almost infallible success.

Although Galen knew that the fœtal lungs were red, heavy and dense, and that they became pale and lighter after birth; it is to our countryman Harvey, according to Daniel, that the honour is due of proposing to determine by these characters, whether a child has been born dead or alive. Thomas Bartholinus, however, was the first who noticed (1663) the comparative fact, that the lungs of a fœtus sink, while those of an adult swim in water. In 1670, Rayger, a German, proposed this comparative experiment as an infallible criterion for deciding cases of alleged infanticide; and Schreyer, in 1682, first had actual recourse to it in the proceedings of a court of law. In 1780, Daniel proposed to add some tests, drawn from the increased weight of the lungs and certain changes in the form and volume of the chest; and, lastly, in 1783, Ploucquet of Tubingen, published the new static test, that namely derived from the *ratio* of weight betwixt the body and the lungs.

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* Daniel op. suprad. p. 129.

Having premised these observations on a piece of history, unimportant, perhaps, but more or less mis-stated in the three works under review; we shall proceed to consider the tests in question, the fallacies to which they are exposed, and the precautions to be followed in applying them.

The lungs in the fœtal state are reddish-coloured, sometimes brown or bluish, dense and compact, heavier than water, and shrunk towards the back of the chest, so as to leave the greater portion of the heart exposed. But as soon as the child has breathed after delivery, they become much paler, rosy, and sometimes variegated; their air-cells are dilated, and the blood flows freely through them, by the pulmonary circulation. Hence they are increased in volume, so that they push down the diaphragm, almost cover the heart, and render the chest ampler and more convex; their weight is also increased nearly twofold; while their specific gravity is diminished, so that they swim in water. Such are the principal changes, on which is founded the *Docimasia pulmonum*, or medico-legal inspection of the lungs.

In the *first* place, the lungs are dilated. Some have absurdly imagined on this account, that they *fill the chest more completely*. Even Daniel (p. 185) has fallen into this error, and Capuron has followed him (p. 390); nay, he shows that it is a fallacious sign, because Schmidt and others had occasionally seen them filling the whole chest! Assuredly they fill the whole of it in every case; for they, or the heart, must be in contact with every part of the parietes. Nay, if a vacuity was found, would it not prove that the child had breathed?—that the thorax had been expanded, and the lungs afterwards collapsed, as usual, when the cavity was punctured?—Their dilatation is accompanied with expansion of the chest. On this circumstance is founded one of Daniel's tests. He proposes to compare, with the length of the whole body, the capacity of the chest in the fœtal state, and immediately after birth; and that its capacity should be ascertained, by taking the widest circumference, the depth at the point of the sternum, and the length of the dorsal portion of the spine. But there are obvious reasons for rejecting this criterion, as both complicated and fallacious.—The dilatation of the lungs is also attended with sinking of the diaphragm; and it has been proposed to derive another test from the comparative level of the highest point of its convexity; a test, however, which is objectionable on the same grounds.—Lastly, their dilatation brings their edge farther forward, so that they nearly conceal the heart. This distinction affords a useful criterion, provided it is well marked; but little reliance can in general be placed on it alone. For, according to Schmidt, the lungs may be mal-conformed so as not to cover the heart, though the child breathed thirty-six hours. At the same time, we believe, Wildberg is correct in stating, that malformation of the lungs is exceedingly rare. *

*Secondly*, Their weight is increased by respiration, in consequence of the blood pervading the pulmonary artery and veins, and their minute branches. From this change two tests have been deduced; that of Daniel, founded on their *absolute* increase in weight, and that of Ploucquet, derived from their increase *in relation* to the weight of the whole body. Daniel proposed to ascertain the weight of the lungs hydrostatically, and he has given (p. 201) a very neat hydrostatic process, by which both the weight and volume may be determined. A process almost precisely the same has been very recently proposed by Bernt. But it is a sufficient objection to the whole test, that the weight of children varies frequently within extremes, of which the one is nearly double the other, and that of course the absolute weight of the lungs must be equally various. To obviate this defect, Ploucquet proposed to determine, not their absolute, but their relative weight to that of the body; and when he first published the proposal, he seems to have relied very confidently upon it, as supplying a sure and a palpable criterion: For he had found the ratio of the lungs to the body in the fœtus to be *twice as great* as in a child that had breathed. In fact, the weight of the lungs in a still-born child was, to the weight of the whole body, as 1 : 70; and in a child that had breathed, as 1 : 35. The experience of others, however, has not corresponded with his expectations. For it appears, from a Table drawn from the records of the Hospital of Maternity at Paris, and published in the Thesis of Lecieux, that the ratio for the fœtus may be so low as 1 to 30, 25, or 23, and that for a child who has breathed so high as 1 to 60, 78, or 119. Here, however, we may apply with justice a remark already made upon the hydrostatic controversy in general; namely, that Chaussier's pupil has dealt unfairly with Ploucquet, by simply quoting contradictory facts, without showing on what the contradiction depends. It is not improbable that the incongruities observed may have arisen from such causes as may be always easily recognised; and in that case they would constitute but a feeble objection to the test. The Table in question does not contain so many particulars, as will enable us to judge whether the causes of variation may be always appreciated. But after much labour, we have extracted from it enough to show, that this may be done in most cases; and likewise, that several interesting facts in the history of the fœtus and infant, might be deduced from a Table of the sort, kept upon a more enlarged plan.

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* Decis. Medico-Leg. de Infant. Neog. p. 76.

For example, by a calculation founded upon Lecieux's Table, it appears not improbable (though contrary to general belief, and to the express opinion of various medico-legal authors *), that during the 7th and 8th months of pregnancy, the weight of the lungs, compared with that of the body, is much greater than at the full period,—as if Nature, foreseeing the possibility of a premature change in the child's mode of existence, had brought soonest to perfection the organ most necessary for supporting it. This source of fallacy might be avoided by ascertaining, as must be done at any rate, the maturity or immaturity of the child.

Another curious deduction, which may unquestionably be drawn from the Table, is, that the changes the lungs undergo after birth take place slowly. Physiologists have hazarded a conjecture to this effect long ago. So early as 1689, Craanen, in a treatise entitled *De Homine*, asserts, that the whole lung does not expand at once, but only a part of it, and that the first part dilated is the upper portion of the right lung.† This remark has been frequently repeated since his time, though Chaussier's observations prove, that the left is as often the first to be dilated as the right. Dr Hutchinson has noticed the same fact on the authority of a Neapolitan physician. But we confess we have somewhat less faith than the Doctor in his Neapolitan friend's veracity. It seems he "opened daily on an average (at the Foundling Hospital of Naples), the bodies of ten or twelve infants, which had generally died within twenty-four hours after birth, and he hardly ever found more than a very small portion of the lungs dilated by air: this portion was frequently not larger than a walnut in its green shell, and rarely larger than a hen's egg." Four thousand children yearly would seem to be no inconsiderable proportion of the annual births at Naples; yet the testimony of this gentleman would lead us to believe that all these died at the Foundling Hospital, within twenty-four hours, and were all dissected by a single pathologist! No question, however, can exist as to the correctness of the general fact, though it is here somewhat forcibly stated. For, by calculation from Lecieux's Tables, we find, that the average ratio of the lungs to the body, in thirty-seven still-born children at the full time, being 1 : 64, that of eight children at the full time, who lived a few hours, is 1 : 50, that of sixteen, who lived from one to two days, 1 : 34½, and that of twenty-seven, who survived betwixt five and ten days, is so low as 31½.

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* Wildberg, Decis. Med. Leg. de Inf. Neog. 125.

† Daniel, op. cit. p. 100.

Lecieux has certainly admitted into his Tables, several cases in which the lungs must have been malconformed. Thus, the average weight of the lungs in forty children born dead at the full time, is about 52 *grammes* (801 grains), and in one of these only is it so little as 32. But in four other children, they weigh only 19, 14, 13, 10, while the body itself is of an average size. It is true that, if any of these children had breathed, the lungs would never have increased so much in weight, as to conform with Ploucquet's test. But would not these exceptions be readily recognised, as depending on malconformation, and thus be the source of no error?

We may readily imagine, that a great number of the recorded cases having died of natural disease, many of them must have been emaciated. In this way, too, Ploucquet's test is liable to fallacy; but it is of such a kind, as may in general be avoided with ordinary precaution.

Lastly, The lungs may be congested, from natural disease, or other causes, and thus acquire preternatural weight. It appears, however, that the fœtal lungs are not liable to be congested. Ploucquet himself has quoted the authority of a very accurate observer, Rœderer, who twice saw in still-born children, the whole organs of the chest injected and inundated with blood, *except the lungs.* And as to the preternatural turgescence frequently found in the lungs of those who have breathed, it can supply no valid objection to the test; for, by giving additional weight to them, it only renders the test doubly sure.

On the whole, it appears to us highly probable that, although Ploucquet's test is liable to various fallacies which render it inapplicable in certain cases, yet these cases may in general be recognised, especially when the subject shall have been more minutely studied; and that those not recognisable are so few in number, that they should not interdict the employment of the test *in conjunction with others.* It should also be particularly noticed, that some of the sources of error, such as malformation of the lungs, must always operate on the side of the prisoner: they may tend to make us believe that a child who has breathed was still-born, but never that a still-born child has breathed. Now, it is no very serious objection to a particular system of proof, that it will not always detect guilt, provided it can never impute it.

But, *thirdly*, the lungs after respiration, though increased, as we have seen, in weight, are diminished in specific gravity; and consequently, though they sink under water in their fetal state, they swim if the child has breathed. Nay, their buoyancy is generally sufficient to support the heart; or, according to Daniel (p. 201), they require, when the heart is separated, to be weighed down with two or four ounces before they fairly sink. This distinction constitutes the famous hydrostatic test, which has been the chief subject of the long controversy alluded to, and which, notwithstanding its frequent condemnation, will furnish, with proper care, a sure criterion in a vast proportion of instances. As it is a test very easily tried, and therefore generally preferred by those who put faith in medical evidence, we shall discuss its merits at some length, and show how all the fallacies charged against it may be successfully avoided.

One class of objections relates to errors, the effect of which is in favour of the prisoner; because the lungs may sink, though the child lived. 1. A child may live some time after birth without breathing. 2. The lungs may be developed so gradually, and the child die so soon, that they are not rendered buoyant. 3. They may sink, because they are tuberculated, or gorged with blood.

1. It is certain that a child may live some time after birth without breathing. Wrisberg twice saw an infant lie for seven or nine minutes after delivery enveloped in the membranes, and kicking and sprawling lustily. Unless the means employed to murder it in this state were such as left distinct marks of violence on the body, Capuron justly remarks, it would be impossible to discover the least trace to justify suspicion. But if any one consider how rarely such cases occur, and likewise how seldom the mother can recover strength soon enough to inflict violence upon the child during the short period it may thus survive, little reason will be found to insist on this objection.

2. We have seen that the lungs are developed but gradually. Capuron adds, that the gradual development takes place chiefly in immature children. Dr William Hunter, in his Essay on the Uncertainty of the Signs of Child-murder, alleges, that, "if a child makes but one gasp and instantly dies, the lungs will swim in water as readily as if it breathed longer, and had then been strangled." The assertion here made is certainly

too strong; for since it is proved, that, after respiration has been carried on several hours, we may find but a small portion of the lungs dilated, it is impossible that they should swim as readily as if they had been expanded altogether. Daniel, however, after collecting the experience of all previous authors, and well aware of this slow dilatation of the lungs, agrees with a similar remark of Haller, that they will swim in consequence even of a single inspiration. *Tanta a primis respirationibus in pulmone mutatio sequitur, ut etiam ab unicá natent.* (p. 185.) But let us suppose, with Capuron and others, that they may sink, especially when the heart is attached; the fallacy may be easily avoided by the process now universally followed on the Continent in like cases. The experiment is to be tried again after removing the heart. If the lungs still sink, they are to be cut into fragments, and each of these tried; and should one fragment swim, the proof of respiration is as complete as if the whole had floated. We may venture to add an obvious precaution, however, to be followed in making this experiment, though none of our authors notice it; namely, not to use a bit of lung to which a large vessel, or a large bronchial tube, is attached.

3. The lungs may sink, though they have been employed in respiration, because they are tuberculated, or gorged with blood. Tubercles are very rarely met with in the lungs of infants. Of the 400 cases in Chaussier's Tables, only one had tuberculated lungs. Besides, we question whether an expanded lung would sink from that cause; at least the adult lung almost always floats in such circumstances. Finally, though it should sink, the source of fallacy may be always recognised and avoided by the precaution of trying separate fragments. As to gorging of the lungs with blood, Capuron questions whether they will ever sink in consequence: and we know, that the greatest gorging observed in the lungs of adults (not resulting from specific disease) will not prevent them from floating. There are facts on record, however, which show that the lungs of an infant may be so much gorged as actually to sink. Thus Hoffmann (T. vi. p. 213.) mentions the case of a child, suffocated by its mother when several weeks old, whose lungs sank in water. Bohn (Daniel, p. 108.) has given a case apparently of the same nature. And Dr Hutchinson has observed the same thing in an infant that "had lived forty hours and cried pretty strongly, but died from suffocation by being overlaid by the mother." (p. 52.) It is clear that instances of the kind may be always recognised with ordinary attention, and allowance made for them. Nay, the source of fallacy may be removed; for Buttner, Metzger, and others have found, that, by

*gently expressing the blood, the congested lung may be made to float.*

The first class of objections, therefore, are unimportant, because the circumstances that lead to them are very rare, and may be almost always avoided.

The second class of objections are of much greater consequence than those hitherto noticed; for they operate more frequently, they are less easily recognised, it is not always so easy to make allowance for them when they have been recognised, and their tendency is against the prisoner, as they would show that a still-born child has breathed. It is alleged that the lungs of a still-born infant may be made to float; 1. because it breathed in the uterus; 2. because it breathed while in the passages; 3. because the lungs may be dilated by artificial respiration; 4. by the gases evolved during putrefaction; 5. by a spurious sort of emphysema produced by difficult labour, and unconnected with putrefaction.

1. It is alleged that the child may breathe in the uterus. We need not here attempt to discuss the paradoxical question of the *Vagitus Uterinus.* It would be unjustifiable to reject as untrue the evidence so often brought forward in its favour by the German authors, and especially Osiander, who, we believe, has asserted, that he scarcely gives a course of midwifery without having an opportunity to *demonstrate* it. We shall only observe how singular it is, that, with the most ample opportunities, the Professors of Midwifery and of Legal Medicine at Paris have never witnessed a single case of the kind. The only circumstances under which it is possible for the infant to breathe in the uterus are, when the membranes have been ruptured, and the face presents. Now, in the first place, such presentations are exceedingly rare. Of 16,980 children born at the Hospital of Maternity at Paris, only 59, or one in 300, were of this nature. * In the second place, granting they may breathe when so situated, it is certain that they rarely do breathe. Capuron says (p. 404.), he has witnessed six cases of face presentation in the course of his practice, and in none did the child breathe before delivery. And lastly, granting it may breathe, such a case can hardly become the subject of criminal procedure; for the labour cannot be completed without professional aid.

2. The child may breathe in the vagina, and yet die before it is expelled. Many have denied that this is possible. Rœderer, Camper, Gehler, Wrisberg, Meckel, Metzger and Marc, have

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* Corv. Journ. de Méd. XVIII.

denied it. The last distinguished Professor has even tried to prove it impossible: For, says he, † if the body of the child be detained in the passages after the head is delivered, the same force which prevents delivery must also prevent the child from breathing; and if the force is insufficient to prevent inspiration, it cannot impede the speedy expulsion of the child. There is more force in this remark than many of his successors will allow. The power of inspiration, in fact, is exceedingly small, even in an adult, and far less than is generally imagined. We have found, that the force of inspiration in a strong adult will not support a column of mercury above half an inch in diameter and two inches in height. How, then, should the muscles of inspiration in a feeble infant overcome the resistance afforded by a compressing force sufficient to prevent its expulsion? But Bohn, Haller, Morgagni, Teichmeyer, Ploucquet, Hunter, Baudelocque, Rose, Osiander, Schmidt, and Capuron, declare they have heard the child cry when the head was in the passages, or expelled from the vagina. Unquestionably they have. But has it been under such circumstances as prevented the speedy completion of labour? for this condition is requisite to destroy the life of the child before delivery. Will not the very circumstance of the child being able to breathe in the passages afford the best possible security against those accidents which endanger its life during the subsequent stages of the labour? On this point they are all silent; so that Professor Marc's reasoning still stands unrefuted.

3. The lungs may be dilated by artificial respiration. A woman who has been secretly delivered of a still-born child, and retains sufficient strength, affection, and presence of mind, may endeavour to rouse it by blowing air into its lungs; and thus incur the suspicion of having been instrumental in its death, while she actually displayed the utmost anxiety for its preservation. On this point, however, it may first be noticed, that such an attempt is highly improbable, as the previous sufferings of the mother almost always deprive her equally of the faculty of mental and of bodily exertion. Neither is the operation of supporting artificial breathing by any means an easy one; nay, some believe it to be so complicated, that no mother could succeed in dilating the lungs. Buttner and Chaussier and Mendel, however, have mentioned instances where it was actually done. But, again, Rœderer asserts, that, although the lungs be inflated in this manner, they will not swim; and his opinion deserves attention, for Rœderer was not accustomed to make assertions

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† Manuel Medico-Legal.

without having been led to them by observation. Bohn, Haller, Camper and others have on the contrary asserted, that artificial inflation will render the lungs buoyant; and their opinions are entitled to equal regard. Unfortunately we cannot explain on what this discordance of opinion depends. We conceive it not improbable, however, that to render the lungs permanently buoyant will require the continuance of insufflation for a considerable length of time. Their state of repose in a still-born child is that of complete condensation. The elasticity of their tissue tends to bring them back to that state. Hence, when abandoned to themselves after insufflation, they will probably become almost as dense as before, unless the insufflation has been long continued and forcibly performed, so as to destroy in part their elasticity. But the case is different when they have been employed in natural breathing. Their state of repose is then intermediate between full expansion and contraction: For the parietes of the air-cells, in consequence of the afflux of blood throughout their tissue, acquire increased firmness; their elasticity is altered somewhat, and can never bring them back to their fœtal state of condensation.

For obviating this objection to the hydrostatic test various means have been proposed, all of which are founded on the expansion not being accompanied with the circulation of blood through them. The lungs do not gain additional weight; and their vessels, especially the pulmonary veins, are empty, without the signs of hemorrhage throughout the rest of the body. It has been farther conjectured by Fodéré, * and affirmed by Wildberg, † that the air may be so far squeezed out as to make them sink in water. The two first tests can evidently furnish but an approximate correction; and the truth of the last may be questioned. Capuron, the only one of our authors who mentions it, has contented himself with a general denial of its accuracy, without referring to actual observation or experiment. It is to be presumed, that Wildberg had rested his assertion on personal experience, since he quotes no authority for it. But it requires to be confirmed by others before we can adopt it unreservedly. Farther inquiry is still wanting to determine the precise effects of artificial respiration.

4. The next objection to the hydrostatic test is, that the lungs may be dilated by the gases evolved during the progress of putrefaction. Such a source of fallacy, however, must be exceedingly rare. For, in the first place, of all the soft animal tissues that of the lungs is least disposed to putrefaction. They

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* Traité de Med. Leg. IV. 482.

† Decis. Med. Leg. de Infant. Neog. 110.

have been seen little altered, when other parts of the body were reduced even to a pulp. Camper found, by experiment, that when the whole body was so far advanced in putrefaction that the joints separated with the slightest touch, yet the lungs had only begun to decay, and did not float in water. Haller observed, that in a child, whose body was so far decayed as to exhale a most fetid odour, the lungs sank, both entire and in fragments. And Buttner found, in a child born at the end of January, and examined in the middle of March, that the lungs were scarcely putrid, and still sank. Some have even questioned whether they will ever float from putrefaction, *if retained within the body.* But decided facts have proved the affirmative. Alberti has related the case of a still-born child, whose chest contained a large quantity of half putrid blood and serum, and whose lungs were half corrupted, and swam. Heister too, found that the lungs swam, both entire and divided, in a child which had died and putrefied in the uterus.

It is almost incredible how discordant the opinions of authors have been on the effect of putrefaction on the lungs *out of the body.* Some allege they never float from this cause; others that they always float; others that they float only if allowed to putrefy in water; others that they float only in the water in which they have putrefied; others that they float only in the most advanced stage of putrefaction; and others, that, in the progress of putrefaction, they first float and afterwards sink. Were it worth our while, it would be easy to reconcile all these counter-statements by attending to the following circumstances. The gases evolved by putrefaction collect chiefly, as Schmiedel and Wildberg observe, under the pleura; and the decrease of the lungs in specific gravity is owing, not only to the evolution of air, but also to the softening and expansion of their tissue. Hence, if the pleura is broken before the experiment began, they may never swim; or they may be made to float at first by the expansion of their tissue, and sink afterwards, when the external expanded layers, especially the pleura, have separated; and so on. When the lungs are found to float in a child that has been long putrid, the fallacy may always be avoided by subjecting them to continued gentle pressure. For the aëriform fluid will be sufficiently expelled to make them sink if it is the product of putrefaction, but never if the air-cells have been distended by natural respiration.

5. In the last place, it is objected that the fetal lungs may be rendered buoyant by a sort of spurious emphysema. This objection was first stated by Professor Chaussier; but the statement was also accompanied with the mode of obviating the fallacy.

" It has been farther observed," says his pupil, " that the lungs will often float, when the fœtus exhales no putrid smell, and all its organs retain their natural consistence. Thus, after extraction by the feet, especially when the pelvis was narrow, I have several times seen a portion of the lungs swim, though the child had unquestionably never breathed, and had expired during labour. I could not attribute its decrease in density to putrefaction, as the body presented no such characters, and was examined very soon after birth. It appeared to me, that the lungs had experienced a kind of contusion during the extraction of the fœtus, and that blood had in consequence been extravasated in their tissue, and bubbles of air disengaged from it, as is often seen after ordinary contusions, especially of the head. – – – Whatever may have been the cause of it, it may easily be distinguished, as the aëriform fluid is contained in the cellular tissue only, and may be squeezed out so as to take away their buoyancy."—(*Lecieux*, pp. 55, 66.)

Such appears to us to be a fair statement of all the objections advanced against the hydrostatic test. On reviewing them, it will be allowed that the facts on which they are grounded are of rare occurrence, and many of them doubtful; that some of them never occur in such circumstances as generally attend a criminal prosecution; that in all of them every risk of error may be avoided by the use of certain obvious precautions; and that in almost every case a skilful and patient inspection will lead to a sure and positive opinion, whether the child has survived delivery. The only difficulty in the way at present, and that a very remote one, is the possibility of an attempt being made to rouse a still-born child by supporting the respiration artificially. This difficulty we have every reason to expect will be removed by future observation and experiment.

Besides the changes which the lungs undergo in volume, weight, and specific gravity, there are likewise a few others of less consequence, which have been already alluded to, and which deserve more particular notice, because, although their presence will scarcely prove that the child has breathed, yet their absence will generally establish that it has not.

The lungs, after respiration, become much paler in colour, their vessels are more injected with blood, a greater quantity of blood flows from them when they are cut into, and they give a peculiar feeling of crepitation when handled. If these signs are wanting, if they do not crepitate, if their colour is florid, and yet the pulmonary vessels, especially the veins, contain little blood, we have strong reason to suspect that they were never employed in respiration. Although for obvious reasons the converse does not hold true, still it may justly be taken into account in conjunction with the tests formerly mentioned.

The only other organs in which such changes occur soon after birth, as to furnish proofs that the child has outlived delivery, are the stomach, intestines, bladder, and the umbilical vessels. The stomach may contain aliment; which alone would prove decidedly that it had survived. Or the great intestines may have discharged all the meconium, or the bladder its urine; neither of which, however, would be decisive, as these excretions may be forced out in part during difficult labour. Or, finally, the umbilical vessels, especially the veins, may be nearly empty and collapsed, or the umbilical cord may be surrounded with a little ulcer or may even have dropped off altogether. Many of these are excellent and decisive signs of the child having lived after birth. But, unfortunately, they can seldom be made use of in cases of a criminal nature; for the child is generally murdered soon after birth, before any of them can take place. The ductus arteriosus, too, according to Capuron, Hutchinson and others, will be found empty if the child has survived; but we suspect that, like the aorta and other great arteries, it will be nearly empty in every case.

V. The Fifth and last question which a medical witness may be required to determine, in trials for infanticide and concealment of pregnancy, is the cause of the child's death. This was a point of minor consideration in trials upon the old statute: for the guilt of the prisoner was supposed to be sufficiently evident, if there was proof of the child having lived. But, according to the present law, how necessary and useful soever that proof may be as preliminary or presumptive evidence, no person can be convicted of child-murder, unless it be clearly shown, as in other trials for homicide, that the child was actually murdered. There is still one essential difference, however, between the evidence of child-murder and ordinary homicide—that, in the former, the very fact of murder having been committed is in general sufficient to attach guilt to the prisoner, since it is highly unlikely that any one else could commit the crime, at least without her acquiescence.

The child may die during labour or after delivery.

The best view of the causes of death during labour is given by Capuron, (pp. 340–354.) We have already noticed his account of the natural causes of death. As to the means of committing murder during labour, besides being few in number, they can seldom become the subject of criminal proceedings; because, for the most part, the assistance of another person is necessary to put them in execution. A female, especially in her first labour, rarely possesses the strength or presence of mind requisite to enable her to kill her own child while in the passages. Nevertheless, instances are not wanting of murder committed in this conjuncture by midwives, or even by the mother herself; and, besides, attempts have been made to impute such a crime, by inflicting injuries on the body of a still-born child.

The kinds of violent death noticed by Capuron are the following—Puncture of the fontanelles, orbit or nucha; twisting of the neck after the delivery of the head; detruncation of the head; strangulation. Professor Fodéré has given an account of another singular mode of committing this kind of murder, practised not long ago by a young widow in France. Being seized one evening with labour pains while receiving a visit from eight of her neighbours, she complained of colic, seated herself on a bucket in bed, and, when the child's head had passed the vagina, she squeezed it flat by compressing it with her thighs! *

Of these causes, the only one that deserves particular mention here is strangulation. The child may be strangled before it has made a single inspiration. The marks of violence left upon the body are nearly the same as when the crime is perpetrated later, after the child has breathed. But they may be mistaken for the mark sometimes caused around the neck, by the uterus contracting upon it after the expulsion of the head, or by the umbilical cord twisted round it. Ploucquet observes, that, in the two latter cases, the ecchymosis will never be accompanied with ruffling of the epidermis, upon or around the mark; that the mark produced by the uterus forms a complete and regular circle round the neck, and that produced by the chord a smooth and uniform spiral. If the child has, on the contrary, been strangled with a cord or with the fingers, as is more commonly done, the ecchymosis is more irregular, and generally attended with ruffling of the epidermis, or nail scratches. At the same time we may observe, that it is quite possible to suffocate or even to strangle a child or an adult, without leaving on the neck any obvious mark whatever.

According to Capuron, the natural causes of death after delivery, are, 1. Imperfections either from simple immaturity or from malformation; 2. Weakness and fatigue, owing to a long and difficult labour; 3. The occlusion of the nostrils by the membranes, occurring chiefly when the whole conception is on a sudden discharged in one mass; 4. Fracture and other injuries of the head, produced by the child falling on the ground; and, 5. Suffocation, either at the time of delivery, in consequence of the child's mouth falling into the fluid discharges, or after de-

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* Traité de Med. Leg. IV.

livery, in consequence of its being overlaid, pp. 354–359. Of these, the only causes that require particular notice are the two last, because they may give rise to appearances very similar to those resulting from criminal violence.

Capuron disputes the possibility of the head being fractured, as is commonly alleged, by the unexpected expulsion of the child, and the breaking of the umbilical cord; and, after a series of interrogations, intended to throw discredit on the general belief, he adds, "will not the fringed, unequal, irregular fracture of the cord be sufficient to distinguish it from the smooth, uniform section made by a cutting instrument?" Granting to his interrogations all the force to which they are entitled, as showing the improbability of such an event, and in the case of a first labour its impossibility, we believe the accident may still occur in such circumstances as to imitate precisely the effects of criminal violence inflicted after delivery. Mr Chamberlayne, in the 7th volume of the Medical and Physical Journal, has supplied sufficient evidence to this effect. A patient of his "was taken so suddenly in labour, that the child shot forth from her with such force, as to separate the funis; which broke exactly in the right place, and as even as if it had been cut with scissors." p. 284.

It is a matter of some moment, therefore, to discover what injuries may happen to the body of a child which falls from the height of the pelvis, or of an ordinary bed. This has been done by Professor Chaussier. When the dead body of a child is held by the feet, so that the crown of the head is 18 or 19 inches from the ground, and then dropped perpendicularly, in twelve out of fifteen trials a longitudinal or angular fracture was produced in one or both parietal bones; when the height was doubled, the fracture sometimes extended to the frontal bone; and, when it was still higher, the membranes were stretched or torn, the form of the brain was sometimes altered, and more rarely blood was extravasated under the integuments, or within the skull. (*Lecieux*, pp. 64–6.) We shall notice presently some experiments of the same nature on the criminal causes of fracture of the cranium.

A child may be suffocated after birth by smothering in the bed-clothes; by the face falling into the mother's discharges; by being accidentally dropped into a privy, &c.—we say accidentally, for a case of the kind has been quoted at the commencement of this review, in which the child dropped into a night-stool; and the author adds, that the lady had been prevented by the violence of her supposed colic from repairing to the common necessary, where the child would have infallibly perished. Such cases are not uncommon. The most important varieties of suffocation, however, are smothering in the bedclothes or discharges; for, unlike that just noticed, they may happen after a first labour. Suffocation, or drowning in the discharges, will be generally recognised by the peculiar contents of the mouth and trachea. But as to smothering in the bed-clothes, there is no possibility of distinguishing it from the same kind of death produced designedly. Although there is not a more easy, effectual, or secret mode of committing child-murder, it is fortunately hardly ever resorted to; for here, as in all cases of homicide, a great deal more mischief is generally done than is required to effect the purpose in view. If criminals were a little more cool and dexterous in the means they employ, our art would much oftener fail in exposing their guilt.

The criminal causes of child-murder after delivery are usually divided by medico-legal authors into those by Omission and those by Commission. By the laws of all nations, a woman is guilty of the murder of her child, if she omits the employment of those means which are universally known to be requisite for its preservation. The causes of death by Omission are, according to Dr Hutchinson, neglect to remove the child from under the bed-clothes—to keep it sufficiently warm—to supply sufficient nourishment—and to tie the umbilical cord (pp. 82-8.) As to the first of these causes, it can scarcely be charged against the mother, except as one of the ordinary consequences of secret delivery; for many a female is unable to render assistance to her child; death may arise from accident as well as design; and medical evidence can rarely distinguish the two cases from one another. The second cause comes under the head of death from Exposure, and ought properly to be arranged among the causes of death by Commission. The practice of our courts is precise upon this point. If the child has been left in a solitary place, or where there was an evident risk of accidental death by cold, drowning, injuries, &c. the woman is held to be responsible. It should be generally known, however, that simply leaving an infant alone may prove the direct cause of its death; for, as Dr Hutchinson properly remarks, "it may die from suffocation if it lie on its back for some time after delivery, apparently from the mucus collected about the fauces getting into the trachea."

Starvation is a very unlikely mode of committing Infanticide.

Neglecting to tie the umbilical cord may not always prove fatal; for, when cut with scissors, and, still more, when torn across with the hand, the vessels may be so speedily closed with clots, that (as occurred in the case quoted from Mr Chamberlayne's paper), not a single drop of blood shall escape. In ordinary cases of concealed pregnancy the cord is generally broken with the hand, and hence umbilical hemorrhage will rarely be the cause of death, as the mouths of the vessels are contused and at a distance from the umbilicus. Capuron, indeed, thinks the child can never die from omission of the ligature; but it is sufficient, without refuting his reasons, to object that children have been frequently known to die of it, and that Professor Fodéré, whose opinion he notices and disregards, has related as unequivocal a case of the kind as an impartial person could possibly desire (iv. 516.) The danger of neglecting this precaution is so well known to every female, that, if the body exhibits sufficient proof of death by hemorrhage, and the cord is found severed, especially by a cutting instrument, the presumption of the mother's intent must be generally pretty strong. There is only one kind of death that may throw some difficulty in the way of this conclusion, namely, when the cord has not been divided till the placenta was expelled; for the infant may have perished of hemorrhage before the division of the cord; but in that case the divided surface will exhibit the marks of a wound inflicted after death. Some other measures of precaution with regard to death by hemorrhage from the cord have been noticed by Dr Hutchinson (p. 86.), to whom we must refer the reader for farther information.

The criminal causes of death by Commission are as various in the instance of child-murder as in that of ordinary homicide. The most common means employed are blows on the head, causing fracture and other injuries, wounds of the throat, puncture of the fontanelles, nucha, orbit, ear, or heart; drowning, burning, suffocation by strangling with the hand or a cord, or by cutting the frænum linguæ and doubling back the tongue. The consideration of these subjects, as well as of the means of ascertaining that the injury has been inflicted during life, belongs more properly to another department of legal medicine. We shall therefore just notice one kind of death only, because one of our authors has furnished some new and useful information concerning it, namely, that produced by fractures of the head. Professor Chaussier has made some experiments, in continuation of those formerly noticed, to show the difference between fractures caused during labour, or by accidental falls, and those produced by wilful violence. The chief differences are, in the *first* place, that as the murderer generally goes on striking till the child expires, the injuries are much more numerous and extensive; and, *secondly*, that fractures and contusions are found where the accidents formerly mentioned never could produce them. On these accounts, fractures may often be found in the bones of the face, in the frontal and occipital bones, or even in the base of the skull. (*Lecieux*, pp. 66–8.)

In the foregoing review of the works before us, we have aimed at laying before our readers a correct estimate of the value of Medical Evidence in cases of Infanticide, confining ourselves chiefly to those parts of it which have been most disputed, and which seem to us to be at present sinking unjustly into neglect. We trust it will appear evident, that there is little reason or prudence in branding the inquiries on which it rests with the appellation of "scientific humbugs," merely because they have been made the subject of frequent dispute, and because a few lazy and ignorant surgeons have pronounced them useless, to spare themselves labour, and save their reputation from hazard. It must be allowed, indeed, that in the hands of those who usually investigate such subjects—at least in England, and especially in the metropolis—the opprobrium which has been cast over medical inquiries in cases of child-murder is not altogether unmerited. For, as the crime occurs only among the lower ranks, the requisite medical inquiries naturally fall under the jurisdiction of a very inferior race of practitioners: And we are conscious that few but those, who rank high in the profession and have expressly studied the subject of infanticide in its relations to medicine, will ever be able to give evidence by which we should be willing that the merits of medico-legal science be tried. But we repeat our thorough conviction, that, in the hands of an active, zealous, and skilful practitioner, these inquiries will yield a correct and decided answer in a vast proportion of cases, at least to the fundamental and most disputed question—whether the child was born dead or alive.

We have a few words only to add on the general character of the three works before us. That of Lecieux, or rather of Professor Chaussier, is an imperfect work, containing much new and valuable information on a few particular topics. That of Capuron,—being part of a systematic treatise on the medico-legal questions which relate to midwifery,—contains little original matter, but embraces a useful comparison of most of the modern doctrines with the results of an extensive personal experience. The little work of Dr Hutchinson, in which we are naturally most interested, neither contains much original matter, nor professes to try the existing doctrines by personal experience; but, like that of Capuron, is a very judicious and complete collection of the most approved doctrines, upheld by a reference to the best authorities. We suspect the learned and illustrious patron, to whom it is dedicated, could have wished his style somewhat less harsh and crabbed; but upon this we shall not insist. On several occasions he seems disposed to contravene the rules of authorship. We have already observed, that a long and interesting discussion on the changes which the fœtus undergoes in the latter months of pregnancy is borrowed almost word for word, without acknowledgment, from the work of Lecieux. A similar oversight is committed, when he treats of the mode of inspecting the child's body. Pages 33–6, with the intervening paragraphs, seem to be pretty literally translated from a Thesis by another of Chaussier's pupils, *sur l'Ouverture des Cadavres.* And again, in p. 97–8, he borrows liberally both the matter and style of Mr Hume's work on Crimes.

We shall also venture to express our dissatisfaction with a piece of advice he has given his professional brethren as to their conduct when declaring their opinion upon cases of infanticide. He tells us to shun quoting published authorities, because the Court supposes we are qualified to decide without them, and will not acknowledge our right to use them. Much might be said on this subject. But we cannot enter into detail upon it, as it would be requisite to expound fully the nature of medical evidence,—at present, we apprehend, very little understood. The objection against quoting authorities has been often made, and sometimes insisted on. At the trial of Miss Butterfield in 1775, for the murder of Mr Scawen, it was insisted on.* It was urged also by the Court on the celebrated trial of Spencer Cowper (afterwards Lord High Chancellor) for the murder of Miss Stout; but was withdrawn on the remonstrance of the witness, Dr Crell.† These, and other cases which might be quoted, will suffice to show, that the practice upon the point is not so fixed as Dr Hutchinson seems to think. Nay, it would appear that a reference has been sometimes permitted even to the unpublished authority of living persons; as may be seen from a singular case noticed in the 7th volume of the Medical and Physical Journal, p. 284. We doubt much whether Dr Hutchinson has acted wisely in giving the advice alluded to: it appears to us, that no witness could follow it without compromising the rights and dignity of his profession, as well as the force of his evidence; for it would not be very difficult to show, that medical evidence altogether is little else than a reference to authority. We may refer the reader for some interesting information on the subject to the evidence of Dr Crell on the trial of Cowper.

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* Trial, &c. by Gurney, p. 45.

† State Trials, xiii. 1165.

# PART III.

## MEDICAL INTELLIGENCE.

### DOMESTIC.

*Cubebs.*—" A correspondent informs us, that, owing to the scarcity and consequent high price of Cubebs, this medicine is frequently adulterated with pimento, to the extent of about one-third. "—*Lond. Med. Rep., May* 1823, *p.* 436.

*The Hair, diseases of.*—Dr Good, in his System of Nosology, and in his late elaborate work, the Study of Medicine, professes to enumerate, under the genus *Trichosis,* all the morbid affections to which the human hair is liable.

The following cases, however, (for which we are indebted to the Journal of Foreign Medicine, No. 17), furnish examples of disease in this organ, which seem to have entirely eluded the researches of this learned and laborious investigator.

Case 1st.—A man, aged about fifty, suffered frequently and severely from gout in the head.

Whenever attacked by this complaint, his *hair* began to curl, and became entangled ; so that often in one night, from hanging down straight, it drew itself into a complicated wreathy mass, which no combing could reduce to order. So soon, however, as the paroxysm of gout subsided, the hair lost its twisting disposition, and was easily disentangled. p. 153.

Case 2d.—In the hospital of the Royal Guard at Paris was a private soldier, who had received a violent kick on the occiput from a horse.

The cerebral excitement produced was extreme, and could only be kept under by almost innumerable bleedings, both local and general.

Amongst a series of phenomena produced by this state of preternatural excitation, the sensibility acquired by the *hair* (*of the head*) was not the least remarkable. The slightest touching of this was immediately felt, and cutting it gave exquisite pain, so that the patient would seldom allow any one to come near his head. When dressing his wounds, Baron Larrey, to show that this was not merely a pretence of the patient, gave a hint to an assistant to clip one of the hairs. This, as he was standing behind the patient, was done unperceived ; but, on the moment, the soldier broke out into a sally of oaths, succeeded by complaints ; and it was some time before he was appeased. p. 155.

The first of the preceding affections may be arranged as a variety of Dr Good's second species, *Trichosis Plica*, the characters of which, however, undergo some change; but the second must be considered as a new and distinct species, and may be denominated *T. sensitiva.* —*Ed.*

*Marsh Miasmata.*—The last number of the Transactions of the Royal Society of Edinburgh (Vol. 9. Part 2.), contains a paper "on Marsh Poison," from the pen of Dr Ferguson of the Army Medical Staff, whose name is familiar to our readers.

In this paper, Dr Ferguson undertakes to prove, that the opinions generally entertained with respect to the nature and origin of "Pestiferous miasmata" are erroneous; and although we cannot go along with him in all the conclusions he has come to upon this point, yet we do think he has made out a strong case, and has said enough to show that the subject requires further investigation.

Investigation, however, to be useful, must proceed upon some *undeniable* principle, and must have for its object the solution of some question or questions which really admit of proof, and which, at the same time, have reference to the cure or prevention of disease.

The first step, therefore, in an inquiry of this kind, must be, to establish, by a cautious induction of facts, the actual existence of such agents as "pestiferous miasmata;"—which being done, the inquirer may then proceed to the investigation of the following questions, which are so framed as to admit of the highest species of proof which can be brought to bear upon a subject of this nature, and which, at the same time, involve the consideration of every interesting and important fact connected with the origin and influence of pestiferous miasmata.

1. Under what circumstances have pestiferous miasmata been observed to arise from the surface of the earth?

2. What diseases have such miasmata been observed to produce in the human frame?—*Ed.*

*Prize Essay.*—The London Medical Society have proposed *Diseases of the Spine* as the subject of a Prize Essay for the present year. The prize is a Gold Medal, value twenty guineas.

The subject proposed by this learned body last year, was, it may be remembered, *Dropsy;* but *one* Essay only having been received on this subject, the adjudication of the prize has been deferred until March 1824; so that there are really two prizes to be competed for this year.

*Prussic Acid.*—"In the Number of this Journal for October 1821, I related (says Dr MACLEOD) the history of two individuals, both of whom became affected with soreness of the mouth and ptyalism, during the use of this medicine. In both it was discontinued, and its use resumed several weeks after these symptoms had disappeared. In both, the affection of the gums returned. Yet I have never met with any other instance of this kind, although I have been on the watch for it, and have since employed the acid in at least two hundred cases, principally diseases of the stomach. Dr Granville, in his *Historical Retrospect* for January 1822, mentions his having witnessed a similar effect from this medicine."—*Lond. Med. Journ. Feb.* 1823. *p.* 128.

*Stomach, Ulcerations of.*—A girl, aged eighteen, was suddenly seized, after breakfast, with an excruciating pain at the stomach.

The bowels being in a confined state, a common saline aperient was exhibited, which acted in a few hours, and seemed to produce some relief. About eight o'clock in the evening, however, she was found labouring under great prostration of strength and faintness. Warm fomentations and stimulants were now employed, and with some temporary relief; but her strength rapidly failed, and about midnight she calmly expired.

*Dissection.*—In the cavity of the abdomen, about three pints of a viscid fluid, intermixed with food. On examination, this was found to have escaped from the stomach, through a circular aperture formed by ulceration near the cardiac orifice.

This aperture (the external diameter of which was about one-fourth, and the internal about three fourths of an inch) was in contact with, and partly adherent to, the left lobe of the liver, with which it had doubtless been connected throughout its entire circumference. In the space of about an inch around the ulcer, the coats of the stomach were evidently thicker and harder than usual, but by no means redder. In the vicinity of the pylorus, several dusky spots were seen, varying in depth of colour, and in some places presenting the appearance of incipient ulcerations. With these exceptions, the inner surface of the stomach seemed perfectly sound and healthy.

For several months previous to her decease, this girl had complained, on any unusual exertion, of pain at the stomach, which however never lasted long. To wine, spirits, and beer, to roast meat and butter, she felt a strong aversion; and was indulged, therefore, when she lived, with pies and puddings. Her appetite, however, even for these, was always moderate.—*Med. Repository, March* 1823. *p.* 208.

This case is interesting, as affording an additional proof of the extent to which organic derangement may proceed, without producing any uneasiness sufficient to excite alarm; for the violent symptoms which preceded death were undoubtedly occasioned by the extravasation. For this reason, we have been somewhat surprised to find no mention made of peritoneal inflammation; an occurrence which so generally, we had almost said, so invariably, attends abdominal extravasation.

The learned Editor of the Repository calls this a "well marked instance of cancerous ulceration of the stomach." On this point, however, we venture to hold a different opinion. To us, the disease exhibits none of the characteristics of *cancer*, but seems a well marked example of that class of ulcers in the stomach which Baillie has so particularly described, and specially distinguishes from SCIRRHOUS and CANCER, in this organ.—*Vid. Morbid Anatomy, 5th Edit.*

*pp.* 149, 150.—*Vid. etiam Med. Rep. April* 1823, *p.* 338. *et seq.*—Ed.

*Vaccination.*—A child, aged about twelve months, was vaccinated in the arm. No inflammation followed. In about eight or ten days, therefore, the operation was repeated, and on the same arm. This attempt was successful, and the child passed regularly through the disease, the first puncture remaining all the time quiescent.

In about *six months*, however, this puncture inflamed spontaneously; and the physician who was called in, asserts, that he found on the part a well-formed vesicle, "presenting in every way the satisfactory appearances we expect to find about the tenth or eleventh day after the insertion of the vaccine lymph."

He adds, "the cicatrices of both pocks now remain, and are equally well defined."—*Lond. Med. Journ. Feb.* 1823, *p.* 122.

*Vaccination.*—When Mr Pearson transmitted to China some of the vaccine lymph, he sent with it a pamphlet, in the Chinese language, containing directions for its use.

Of this pamphlet an edition was published in China soon after its arrival, but expurgated; so that nothing appeared from which it could be learned that vaccination was not a Chinese discovery!!!—*Annals of Philosophy, Feb.* 1823, *p.* 150.

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## FOREIGN.

*Contagion of the Spanish Yellow Fever.*—The Diario di Barcelona, No. 208, contains an interesting document of the opinions of several Medical Corporations and distinguished practitioners in Spain with regard to this much agitated question. This document professes to be the result of an investigation appointed by the Cortes in December 1822, to be undertaken by the authorities of the cities which had been infected by the epidemic. The Junta of Physicians and the Medico-Chirurgical Junta of Cadiz, the Junta of Physicians at Malaga, and at Antequerra, and the Supreme Junta of Minorca declare, that the fever is eminently contagious. The municipality of Coin, however, observe, that though several persons affected with fever had arrived there from the districts where it prevailed, no one in that city had been infected. At Barcelona thirty-two physicians believe it is contagious, and ten that it is not. The Junta of Malaga assert, that if the air is surcharged with effluvia, it may infect at the distance of *thirty or forty paces*. The Juntas of Cadiz, Malaga, and Antequerra maintain, that it is always exotic. And all agree that there is no safety but in flight.—*Bulletin de la Soc. Philom. Oct.* 1822. *p.* 153.

*Abyssinian Remedy for Tænia.*—The leaves and flowers of an unknown plant are said to have been long employed with instant and invariable success in Abyssinia for destroying the tape-worm. Some fragments of them having been procured by Dr Brayer, who witnessed their effects at Constantinople, were submitted to the inspection of M. Kunth of the King's Garden at Paris, and proved to belong to a new genus in the family of the Rosaceæ, resembling the Agrimonia. It has been named, in honour of Dr Brayer, the Brayera anthelmintica. It is a small shrub, denominated in Abyssinia *cabotz*. It has branched, downy peduncles, alternate leaves, and quaternate flowers, surrounded with an involucrum. The Philomathic Society request the attention of travellers to this subject.—*Ibid. p.* 154.

*Therapeutic effects of Hyoscyamus.*—" Until it shall be held absolutely necessary to procure a patient a rending headach, with vertigo, phantastic reveries, burning thirst, loss of sight, perversion of the taste, insuperable disgust for every sort of food or drink—without a single wink of sleep, this remedy must continue utterly useless; and in the mean time, it should be expunged from every Pharmacopœia." —*Archives Gén. de Méd. Mars* 1823. Such is the conclusion to which M. Fouquier of La Charité has been led by experiments with the hyoscyamus on 200 of his patients. He denies that it ever acts decidedly as a hypnotic. In opposition to his observations, we may remark, that for a long time it has been freely used in the Infirmary of this city for inducing sleep; and that, as far as we have ourselves observed, it is as effectual as opium itself, and never produces the effects observed at La Charité. The experiments of Fouquier tend to show, that the extract prepared from the expressed juice, and the aqueous extract procured by macerating the dried plant in water at 100° F., and evaporating the product by the water-bath, are nearly or absolutely inert. But M. Planche prepared for him an alcoholic extract of great power, by maceration in weak alcohol at 82°. Of this extract he seems to have given from ten to thirty grains for a dose; and always observed it produce the disagreeable symptoms we have mentioned. The form under which it is used in this country is that of tincture, very similar to that from which Planche prepared his extract. Does the alcohol qualify its properties, and render it more purely hypnotic?

*Impregnation.*—" M. Mondat regards the *aura seminalis* as the active part of the semen; and quotes, in support of his opinion, the following decisive experiments performed at Turin by himself and two other physiologists. The semen of a dog having been received into the cup of a funnel bent for the purpose, its tubular part, ten inches long, was thrust three or four inches into the vagina of a bitch in heat, to convey to the uterus the aura seminalis. In eighteen out of thirty trials impregnation was produced; and the same result was obtained upon two mares."—*Journal Universel. Fevr.* 1823.

*Fallopian Conception.*—A stout woman, who had previously had two children, became pregnant for the third time, and after the usual interval was seized with labour-pains; but nothing was discharged except a bloody fluid. All the customary sequelæ of delivery succeeded. The catamenia appeared in four weeks, and returned regularly for nine months; and during this period she was constantly affected with a yellowish discharge from the vagina, diarrhœa, tenesmus, and acute pain shooting from the anterior part of the tumour to the sacrum. Fourteen months after her abortive labour, her sufferings were very much aggravated. She was affected with constant fever and frequent attacks of shivering, followed by a sense of burning heat, especially towards the sacrum. At last several shapeless masses of bone escaped by the rectum, accompanied with bloody purulent matter; and these were found to have entered the gut by a hole half an inch in diameter, and nearly two inches above the anus. She then obtained some relief; but had occasional attacks of pain, accompanied with the discharge of bones, till eighteen months afterwards. The symptoms then gradually disappeared, and she recovered completely.—*Dr Julia. Journ. Univ. Fevr.* 1823.

*Diagnosis of Adhesion of the Pericardium to the Heart.*—When the pericardium adheres to the surface of the heart, a shock may be felt in the left hypochondrium, succeeded by a manifest depression or drawing in of the integuments. The formation of the concavity is synchronous with the dilatation of the arteries, and the shock with their contraction. During respiration the concavity is deepest, but the shock is feeblest; and the reverse is observed, during expiration. The cause of these phenomena appears to be the connexion of the heart to the diaphragm through the medium of the adhering pericardium, in consequence of which the diaphragm must follow in part the motions of the apex of the heart. When the ventricles contract, (and the arteries dilate), the heart is shortened, and its point rises. when the auricles contract, (and the arteries also), the heart is lengthened, and its point descends. The diaphragm opposite the point must follow these motions, and the alternate impulse is communicated to the adjoining integuments. The concavity is deepest during inspiration, because, during the descent of the diaphragm, the apex of the heart is farthest removed from the place it must occupy when the ventricles contract, and the dragging of the diaphragm consequently most powerful. But the shock is weakest, because the auricles which produce it are farthest removed from the part on which the shock is primarily impressed. All these circumstances are evidently reversed during expiration.—*Dr Sander. Arch. Gén. de Méd. Fevr.* 1823.

*Carditis caused by Poisoning with Arsenic.*—A man ate a bit of bread, and a sausage and a half, poisoned with arsenic. In two or three hours he was seized with vomiting and diarrhœa. The usual symptoms succeeded, and he died 48 hours after the fatal repast. The whole body was rigid. The stomach was natural externally, internally of a deep red colour, not removed by washing or scraping, and near the duodenum there were several roundish specks, varying in size from that of a sixpence to that of a crown piece, of a brownish hue, but whether ecchymoses or eschars, could not be determined. The villous coat was swelled there, but not feeble. The œsophagus was natural. The duodenum and the upper part of the jejunum had a deep red colour, and all the other intestines were strongly injected. The left cavities of the heart were of a mottled red colour; and in the ventricle, especially on its *columnæ*, there were many small crimson specks, which penetrated into the substance of the parietes.

The right cavities had a deep reddish-black colour, and the columnæ of the ventricle showed specks like the left ventricle, but less numerous or distinct. The aorta and other vessels were natural. Arsenic was found by analysis in the remains of the suspected food, in the vomited matter, and adhering to the inside of the stomach, *though the man had vomited incessantly for more than forty hours.* The author adds, that he had previously found in experiments with arsenic upon animals, that the contractility of the heart was destroyed, and its tissue often inflamed.—*Orfila, Arch. Gén. de Méd. Fevr.* 1823.

*Signs of Death by Hanging.*—An insane patient at the hospital of Salpêtrière, was seen hanging herself in one of the gardens. An attendant immediately ran up, and cut the rope; but all attempts to restore animation proved unavailing. The features were composed and natural, and the skin not discoloured or ecchymosed. There was a double mark on the neck, for the rope had been twisted round it twice; the mark was a simple depression, *without any change of colour.* In three hours and a half, no alteration had taken place. In seven hours and a half the body was cold, and began to stiffen; the face was a little discoloured, the legs livid, and the rope-mark of a *light brownish tint.* In twenty hours the features were somewhat bloated, violet-coloured, but not distorted; and the eyes were open and brilliant. The body was examined twenty-five hours after death. At that time the rope-mark was brown, as if the cuticle had been burnt; but there was no ecchymosis in the vicinity. The cellular tissue beneath was dry and compressed, so as to form a *brilliant white band a line and a half in breadth.* The scalp was injected with black blood. The lungs and heart were quite natural, and *not gorged.*

The author justly remarks, that if reliance was to be put on the signs of suspension as they are related in works on Medical Jurisprudence, the foregoing case (*especially if it had been examined within the first six hours*) must have been attributed to suspension *after death.* He is wrong, however, when he states, that all medico-legal authors are at one as to the signs in question; for his countryman Fodéré has explicitly declared, that they are not invariably present. The author farther maintains, that the remarkable differences observed in the bodies of hanged persons arise according as the rope has been left round the neck till the body cooled, or removed (as in the case described above) immediately after death. We shall probably recur to this subject on an early occasion, when we hope to show that these differences depend on another cause; and, at all events, that the explanation he has given will not account for all the facts. We may just add at present, that we compared the foregoing description with the appearances in the body of a woman lately executed in this city, and found it to agree with them *exactly,* except that there was no *brilliant band* in the subcutaneous tissue under the rope-mark.—*Esquirol. Arch. Gén. de Méd. Janv.* 1823.

*Peritonitis from Spontaneous Perforation of the Intestines.*—The disease of the intestines which causes this accident is a peculiar kind of ulceration, whose whole progress is nearly or completely latent. It begins with mild general fever, accompanied with little or no local pain, and seldom with diarrhœa, or any other derangement of the intestinal functions. It terminates just like perforation from rupture, namely, by sudden, violent, unremitting pain and peritonitis, fatal within two days. In the paper, from which this abstract has been taken, the chief novelty is a minute account of the pathological changes the intestinal membranes undergo in their progress towards perforation. The disease commences in the form of a roundish patch, consisting sometimes of the mucous membrane itself, thickened, elevated, and of a greyish colour, spotted with blue; at other times, of a peculiar deposition in the submucous tissue, of a rosy-red colour, and, when cut, similar in appearance to a divided lymphatic gland. During the subsequent stage, an ulcer is formed on its centre, and gradually extends to the circumference; and is surrounded with an elevated, reddish rim, until the whole patch is involved in the ulceration. At this time the muscular coat, nearly or entirely healthy, and covered with a thin layer of cellular tissue, forms the floor of the ulcer; and the villous coat constituting its margin, *is almost natural, and rarely inflamed.* Ere long the muscular coat is also destroyed; and at last the peritoneum is pierced by a neat circular hole, as if the bit had been carried away by a strap-borer. Several patches may be often seen in the same subject at different stages of their progress. They are almost always situated in the lower part of the ileum only; and the perforation is commonly very near the cæcum coli.

We have reason to believe that perforation, the result of this singular disorder, is a commoner cause of peritonitis than is generally imagined.—*Louis, Arch. Gén. de Méd. Jan.* 1823.

*Animal Heat.*—Dulong has lately repeated the well-known experiments of Lavoisier and Delaplace upon this subject, chiefly with the view of ascertaining whether the quantity of caloric, developed by the oxygen which disappears in respiration, is equivalent to the quantity given out by the body. He employed for that purpose a modification of Count Rumford's water calorimeter. The result was, that the quantity of caloric disengaged by the conversion of the oxygen into carbonic acid, is equal in carnivorous animals to between 49 and 55 parts in 100, of the heat disengaged by the whole body during the same interval of time; and in frugivorous animals, to betwixt 65 and 75 parts; and that the whole quantity of caloric disengaged by the formation of carbonic acid and water together, is equivalent to between 69 and 80 parts only. He thence concludes, that the animal heat is greater than can be accounted for by the fixing of oxygen during respiration, and therefore. that some other source of calorification must exist.—*Journal de Physiol. Jan.* 1823.

*Absorption.*—Not long ago, Magendie inferred from a few experiments, which however were of a very equivocal nature, that venous absorption takes place by simple filtration through the parietes of the vessels. His inferences have derived some confirmation from a series of very interesting experiments lately read before the French Institute by M. Fodéra. And if we are to credit this physiologist, the whole processes of absorption and exhalation are nothing else than a simple filtering of fluids through the various membranes of the body. We may pass over at present the experiments he has made to prove, that filtration takes place through the dead membranes; for the fact has been long known; and, besides, it furnishes no proof that a similar process can be carried on during life. But M. Fodéra has also shown, that substances introduced into the pleura during life, will be soon found in the abdomen; and that when they are injected into the peritoneum, they may be found in no long time in the sac of the pleura. Thus, he injected into the left pleura of a rabbit, a solution of the hydrocyanate of potass, and into the peritoneum a solution of sulphate of iron; and after keeping the animal three quarters of an hour on the left side, he laid open both the cavities. The epiploon, the suspensory ligament of the liver, and the mesenteric glands were tinged blue, the peritoneal coat of the stomach and duodenum were interspersed with blue spots, and a few specks were visible even on the rest of the intestines. The substernal lymphatic glands, and the whole tendinous part of the diaphragm were uniformly blue, and the muscular part of the diaphragm was spotted like the intestines. The thoracic duct was filled with a blue liquid, &c. These phenomena take place slowly. But it appears, that, with the aid of galvanism, the transudation may be produced immediately. Thus, if a solution of hydrocyanate of potass, enclosed in a loop of intestine, be made to communicate with one end of a galvanic battery, and a cloth dipped in sulphate of iron, and applied on the outside of the intestine, be connected with the opposite end, the intestine or the cloth will be immediately dyed blue, according to the direction in which the galvanic current is transmitted. From these and other experiments, the author concludes that *exhalation and absorption take place by simple transudation and imbibition, and depend on the capillarity of the tissues.*

His inferences seem to us premature, though it is hardly fair to judge from the short analysis of his Memoir hitherto published. Simple mechanical filtration will certainly never account for the singular and complicated phenomena produced by the processes of absorption and exhalation; and many of the facts adduced in support of his inferences may be explained on the supposition, that the substances pass from one part of the body through the medium of the circulation. At the same time it would be unreasonable to doubt the occasional occurrence of transudation in the living body. In addition to the researches of Fodéra and Magendie, our readers will find an unequivocal proof of it related in the note to page 178 of our last Number.—*Journ. de Physiol. Jan.* 1823.

A gentleman who has distinguished himself by his contributions in chemistry and mineralogy to the Journal of Signori Configliacchi and Brugnatelli, has proposed the following program.

"The reward of 20 sequins is offered for the best Memoir on the Vegetable Acids and Alkalis recently discovered, so as to determine their true nature, ascertaining their relation with other analogous bodies, both natural and artificial, and the state in which they exist in plants. Whatever theory is proposed on this subject, must be supported on observation and on facts well established."

The Memoirs must be sent before the end of 1823, post-franked to the Editors of this Journal, Brugnatelli and Configliacchi, and must have the name of the author enclosed in a letter, with an epigraph according to academical usage. Signor Carlo Volta, Director of the Philosophical Faculty in the Imperial University of Pavia, is charged with electing a committee of three Professors of the same, to pronounce judgment on the Memoirs presented for competition. The successful Memoir to be printed in the Journal.

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## *Diseases of Birmingham, from January 3d, to April 3d,* 1823.

### CHRONIC DISEASES.

| | No. | | No. |
|---|---|---|---|
| Hydrocephalus | 1 | Ascarides | 5 |
| Cephalalgia | 12 | Peritonitis C. | 2 |
| Paralysis Partialis | 2 | Splenitis C. | 2 |
| Paraplegia | 1 | Hepatitis C. | 1 |
| Hemiplegia | 22 | Icterus | 5 |
| Mania | 1 | Ascites | 5 |
| Hypochondriasis | 2 | Tumores Abdominis | 2 |
| Bronchocele | 2 | Nephralgia | 1 |
| Asthma | 140 | Dysuria | 2 |
| Bronchitis C. | 8 | Gonorrhœa | 2 |
| Phthisis | 32 | Amenorrhœa | 11 |
| Hydrothorax | 1 | Hemorrhagia | 9 |
| Tussis | 20 | Schirrus Vaginæ | 1 |
| Asthenia | 6 | Syphilis | 4 |
| Dyspepsia | 113 | Pseudosyphilis | 3 |
| Gastrodynia | 7 | Rheumatismus C. | 37 |
| Pyrosis | 2 | Coxalgia | 2 |
| Hysteria | 1 | Lumbago | 1 |
| Marasmus | 13 | Struma | 4 |
| Obstipatio | 29 | Impetigo | 4 |
| Diarrhœa | 7 | Porrigo Larvalis | 2 |
| Dysenteria | 1 | Scabies | 1 |
| Lumbrici | 5 | Strophulus | 3 |
| Tænia | 6 | Abscessus | 1 |

### ACUTE DISEASES.

| | | | |
|---|---|---|---|
| Phrenitis | 1 | Synochus | 24 |
| Ophthalmia | 1 | Typhus | 25 |
| Iritis | 1 | Scarlatina | 3 |

ACUTE DISEASES *continued.*

| | No. | | No. |
|---|---|---|---|
| Dentitio | 6 | Variola | 7 |
| Catarrhus | 6 | Febris Infantum | 6 |
| Cynanche Parotidæa | 1 | Erysipelas | 7 |
| Cynanche Tonsillaris | 4 | Rheumatismus A. | 8 |
| Bronchitis A. | 1 | Febris Intermittens | 6 |
| Pertussis | 3 | Arthritis Rheumatica | 1 |
| Pleuritis | 4 | Phlegmasia Dolens | 1 |
| Mastodynia | 2 | Abortus | 2 |
| Pneumonia | 1 | | |
| Hæmoptysis | 5 | Total | 678 |
| Hepatitis A. | 1 | | |

With the exception of a few days at the commencement, January was a cold, frosty month, the thermometer frequently standing 18 or 20 degrees below the freezing point of Fahrenheit. Snow fell upon the 8th, and remained till the 25th, with fresh falls every third or fourth day. At this time the weather became suddenly warmer, and a rapid thaw ensued, so that in two days the snow had entirely disappeared. February was very variable. The few first days of the month were fine, but this was quickly succeeded by frost, with alternate falls of rain and snow till the 20th. The wind during the greatest part of the month blew from the north-west, occasionally veering to the east. The early part of March was marked by strong north-westerly winds, at times nearly blowing a hurricane. On the 8th, there was deep snow, which disappeared by the 12th, and, till the 19th, the weather was mild, though rainy. On the 19th, the wind changed suddenly to the east, and a deep snow fell in the night, succeeded by a continued and heavy rain through the whole of the next day. This seemed to have concluded the winter, which has been very long and severe. Vegetation is exceedingly late, and the hedges at present, April 10th, have scarcely exhibited a sign of unfolding their leaves.

As the severe season, which terminated the last quarter, brought in a large mass of winter diseases, as rheumatism, asthma, and other pulmonary complaints, so the same cause continued to render them prevalent through the whole of January and a considerable part of February. The sudden change which took place on the 19th of the former month, though from cold to warm, was much more fatal to asthmatic patients than the previous extreme cold, and many who had borne the latter tolerably well, died suddenly on the return of milder weather; thus confirming the remark of Dr Fothergill in the middle of the last century, that very quick transitions from one extreme to the other are highly injurious.

The instance of hydrothorax which proved fatal, and was examined, very strikingly evinced the accuracy of Dr Darwin's description of this disease, when accompanied by occasional fits of convulsive breathing. The patient was never able to lie down, but very frequently the respiration was so difficult as to render it "very similar to the common periodic asthma. These exacerbations of difficult breathing were attended with cold extremities, cold breath, cold tongue, upright posture, with the mouth open, and a desire of cold air, and a quick, weak, and intermitting pulse." In one of these paroxysms he died. The only appearance of disease was great effusion into the chest, and partial effusion in the abdomen. The great blood-vessels were quite healthy, but the right cavities of the heart were empty, while the left were full and distended.

In one of the cases of hooping-cough, an opportunity was afforded of trying the application of leeches to the head, as recommended by Dr Webster, and, so far as a single instance may be quoted, it was favourable to that gentleman's practice. There was considerable affection of the head, with drowsiness, and great unwillingness to be disturbed. The child hooped four or five times in the twenty-four hours. By the application of leeches and purgatives, every symptom disappeared in the course of a fortnight.

About the middle of February, diarrhœa was very common, and many patients who applied for relief on account of other diseases, were affected by it. It was not, however, usually severe. Catarrh, in a very aggravated form, has prevailed much in the town (though no severe case has occurred among the Dispensary patients), and has ran so uniformly through whole families and districts, as to give a suspicion of its being propagated by contagion. The symptoms were strictly those of the common influenza, attacking, with great violence, either the head or the chest, and sometimes both, with sore throat. It is reported, in a few instances, to have been fatal. So far as I can learn, the worst cases have occurred among the higher classes.

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*Society for the Benefit of Widows of Officers of the Medical Department of the Army.*—This useful institution held their eighth anniversary meeting on Friday 16th May 1823, at No. 5, Berkeley-street, Piccadilly, Sir William Franklin in the chair. The State of Funds laid before the meeting is flourishing beyond example, amounting nearly to 29,000*l.* Sterling, and giving an annual income of upwards of 2000*l.*, while the allowances disbursed to the different claimants do not at present amount to 200*l.* per annum. The benevolent fund attached to the same institution, for behoof of orphans and distressed objects, is likewise in a prosperous condition. After the meeting, the Society dined together at the Thatched House, when Sir Everard Home was in the chair.

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*Instrument for passing a Ligature round a deep-seated Artery, invented by Mr Weiss, 62, Strand, London.*—Since the commencement of our Journal, we have strictly adhered to the principle of never copying any article from similar periodical publications; not, certainly, from undervaluing their merits, but because we considered them as the property of our cotemporaries, with which we could not honestly interfere, and because we know that many of our readers get other Journals besides ours, and would thus have to pay repeatedly for the same article. In a few instances, authors seem to have sent copies of their manuscript to other editors beside ourselves, and it has thus appeared as if we had copied from each other. But this is not right; and we shall never willingly insert any such communication, however excellent in itself. * We have thought it necessary to make this statement on the present occasion, when we give a place to the engraving and description of Mr Weiss's ingenious instrument, which was transmitted to us by a medical friend in London, along with the instrument itself. We promised it a place in the present Number, provided it was not to appear in any other Journal, and we received the following reply. "I communicated the contents of your letter to Mr Weiss, respecting the insertion of a description of his aneurism needle into the next Number of your Journal. He readily consented to your proviso, that it should not appear in any other Journal.—I perceive, however, that the printed description I sent to you has been stitched among the advertisements in one or two Medical Journals; but as this is merely a bill of advertisement, and forms no part of the Number, you will not probably think this a barrier to its insertion in the next Number for July. When the Numbers of the other Journal are bound, of course all such advertisements are left out, so that there will be no description of the instrument on record, but in the Edinburgh Medical Journal."—Under these circumstances, and as we suppress nothing, to which our readers are entitled, to make room for it, we trust we may be excused for having in some measure deviated from our usual practice. We have also taken the liberty of rendering the description more detailed, as we found that that formerly given was not generally understood.—EDITORS.

It is well known to the Surgical profession that the most difficult part of an operation for Aneurism is the passing of the ligature round the Artery, if deep-seated, and the extrication of the thread from the eye of the Needle after it is passed round the Artery. The following Instrument, the principle of which was suggested to Mr Weiss by Mr Kirby, † an eminent surgeon in Dublin, who fully ex-

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* Since the above sentence was written, another case of the kind alluded to has occurred. A communication was transmitted to us for publication in the preceding Number, but arrived too late. Having every reason to believe that it was sent to us exclusively, a place was given to it in the present Number; but after it was printed off, we were surprised to find it in more than one of the London Journals of last month. The discovery was not made until it was too late to cancel it, without considerable expense and inconvenience; and we have preferred adding an additional sheet to the Number.

† SIR,—I have at length received my parcel, and with many thanks I acknowledge your improved Aneurism Needle. I deferred my reply to you until I had an opportunity of speaking from experience of the value of the instruments. It is un-

plained the whole of the operation to him, will be found, it is hoped, to obviate the above mentioned difficulties. It has already been used with success in Subclavian Aneurism by an eminent Hospital Surgeon of London, * and is generally approved of by the Surgical profession.

The instrument may be described as consisting of three parts, 1*st*, The needle case, or *porte-aiguille;* 2*d*, The disengaging forceps; and, 3*d*, The needle. The needle, 3, is short, flat and elastic, having a wide eye, *a*, and a thick point *b*, with an eye also in it, to be laid hold of with the forceps. The *porte-aiguille*, I, of the shape and size represented in the plate, is hollow from *c* to *e* for receiving the needle, and is perforated by a slit from *e* to *d*, so that the extremity, *a*, of the needle, when it is in the case, is in the middle of the slit, *e d*, permitting the eye to be threaded. Another essential part of the *porte-aiguille*, is the transverse fulcrum at *e*, † on which the notch *g* turns. The forceps, 2, must be exactly of such a length, that when the notch is on the fulcrum, the spring at the end, *h*, is correctly applied to the point *b* of the needle in its case.

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questionably a great improvement—it merits all the praise bestowed on it by Mr Travers, and does infinite credit to your genius. Sanctioned by the approbation of Sir A. Cooper, Mr Brodie, Mr Travers, &c. it will soon be in the possession of every surgeon of respectability. I am obliged to you for the notice you have taken in your advertisement, of my share of the invention, and shall do you an equal justice, by stating the circumstances which led to an invention of such importance.

In September last, accompanied by my friend Mr Melin, I had a long conversation with you on the subject of an instrument for passing a ligature round the subclavian artery. I explained the nature of the difficulties in that operation, and told you, that in Ireland I never could get an artist to take my ideas, or form any thing to my mind. You rapidly comprehended the qualities which should be combined in the instrument, and you expressed yourself as certain you could construct one to my satisfaction. In a few days after my return to Dublin, I received by Mr Melin, your first attempt, which I returned as insufficient, with further observations as to your future experiments, and the principles which should guide them. It is most ungenerous in any one to lay claim to the discovery, or to attempt to rob you of the reward so justly due to your labour and genius. As far as my testimony can prevail, you may use it to any weight this letter possesses—you are heartily at liberty to employ it in any way conducive to your interest, and the establishment of your right. I have the honour to be, Sir, &c.

John Kirby,
*President of the Royal College of Surgeons, Ireland.*

To Mr J. Weiss, Strand, London.

* *New Broad Street, January* 18, 1823.

Sir,—I think it due to your ingenuity to inform you, that I yesterday applied a ligature twice to the subclavian artery above the clavicle, with your Aneurism Needle, and found its application easy and entirely satisfactory in each instance. Whatever be the result of the operation, which unforeseen and difficult circumstances render very doubtful, I feel it my duty to state, that your Needle removes a difficulty which every operating surgeon has complained of in his attempts to noose the deep-seated arteries, and that I should be at a loss to name any modern example of the application of a mechanical contrivance to surgical purposes, so happy in point of simplicity and effect, or so promising in point of usefulness. I am, Sir, yours obediently,

B. Travers,
*Surgeon to St Thomas's Hospital.*

To Mr Weiss.

† Marked *e* on the plan, by mistake, for *f*.

When the Instrument is to be prepared for use, you must put that end of the needle marked *a* into the hole marked *c*, at the end of the *porte-aiguille*, and push it quite home: then put one end of the ligature through the slit at *d*, from the outside of the needle, and the same end again from the inside through the eye of the needle and the slit at *e*; the ligature will lie on the outside of the *porte-aiguille*, as in the Plate: and the instrument is then charged and ready for use. Introduce the needle thus threaded under the artery: next take the disengaging forceps marked 2, and lead it down to the joint *e*, till the notch *g* drops into the screw. Press the finger on the rough part of the handle of the forceps marked *i*, when the point *h* will be found to catch hold of the eye *b* of the needle to which the ligature is attached.

Take hold, with the finger and thumb, of that part of the handle of the forceps marked *k*, and press it downwards, which process will be found to draw out the spring, and with it the ligature. When the spring and ligature are drawn out, the best way to clear the one from the other is to cut the ligature away at both ends from the instrument. In order to free the needle from the forceps after the operation, it will be necessary to pull them not directly one from the other, but to give the forceps a half turn to the right in disengaging it from the needle.

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We are requested by Dr Williams to insert the following paragraph, in reference to his communication in the present Number.—Editor.

" Dr Carson retained open the apertures into the chests of his animals with his fingers, whereas mine were kept open in the manner described; which accounts for the different results of our experiments. Dr Carson, in his Essays, does not allude to this circumstance, but since my investigations he has mentioned it. When air is admitted into the cavities of the chest, the animal requires the aid of all his respiratory powers."—*Liverpool, 5th May* 1823.

*A Report* (*the* 1*st*) *of the Northumberland, Durham, and Newcastle Infirmary for Diseases of the Eye, for the Year ending March* 22*d*, 1823.

| DISEASE. | Cured. | Relieved | Incurab. | Irregular | Remain. | Admit. |
|---|---|---|---|---|---|---|
| Acute Inflammation of the Coats of the Eye | 136 | 3 | — | 5 | 20 | 164 |
| Chronic, Ditto - | 161 | 13 | — | 7 | 37 | 218 |
| Ulcers of the Cornea | 46 | 2 | — | 1 | 8 | 57 |
| Albugo, Leucoma, Nebula, and Pterygium | 61 | 50 | 11 | 5 | 54 | 181 |
| Staphyloma - - | 2 | 6 | 1 | 2 | 2 | 13 |
| Purulent Ophthalmia in Children - - | 32 | — | — | 3 | 6 | 41 |
| Ditto in Adults - | 23 | 1 | — | — | 5 | 29 |
| Foreign Bodies embedded in the Cornea | 9 | 1 | — | — | — | 10 |
| Cataracts - - - | 19 | 8 | — | 8 | 25 | 60 |
| Ditto complicated with Amaurosis - - | — | 7 | 9 | 2 | 3 | 21 |
| Ditto complicated with closed Pupil - - | — | 2 | 1 | — | 11 | 14 |
| Ditto complicated with Opacity of the Cornea | — | 2 | 4 | 1 | 1 | 8 |
| Amaurosis perfect | — | 3 | 1 | 3 | 2 | 9 |
| Ditto partial - - | 29 | 10 | — | 7 | 13 | 59 |
| Diseases of the Lachrymal Sac - - | 14 | — | — | 1 | 8 | 23 |
| Scrophulous Ulceration of the Tarsi | 46 | 1 | — | 7 | 30 | 84 |
| Simple Ditto - - | 35 | — | — | — | 3 | 38 |
| Eversion of the Eyelids - - - - - | 9 | 1 | — | 1 | 5 | 16 |
| Inversion of the Eyelids - - - - - | 6 | — | — | — | 2 | 8 |
| Encysted Tumours of the Eyelids - - | 10 | — | — | — | — | 10 |
| Dropsy of the Eye | — | 2 | — | — | — | 2 |
| Total | 638 | 112 | 27 | 53 | 235 | 1065 |

Of the cases marked irregular, one died from accidental injury of the Spine; and it is probable that many have been either cured or relieved who have omitted to return thanks at the Institution.

*Consulting Physician*, Dr HEADLEM. *Surgeons*, Mr T. M. GREENHOW and Mr JOHN FIFE.

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Printed by J. Hutchison,
for the Heirs of D. Willison.

THE
# EDINBURGH
# MEDICAL AND SURGICAL JOURNAL,
## No. LXXVII.

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# NOTICES TO CORRESPONDENTS.

Communications have been received from Professor Jacobson, Drs Abercrombie, Hawkins, and Lyall, Mr Cumin, Mr Delisser, Mr Elderton, Mr Fosbroke, and Mr Geohegan.

The following publications have been received.

Pathological Observations, Part I., on Dropsy, Purpura, and the Influenza of the year 1822, and beginning of that of 1823; and particularly on the Morbid Changes of the Blood, and their influence on the Production and Course of these Diseases. Illustrated by select Cases and Dissections. By William Stoker, M. D. Licentiate of the King's and Queen's College of Physicians in Ireland, Senior Physician to the Fever Hospital and House of Recovery. pp. 224. 8vo. Dublin, 1823.

Lectures on the Operative Surgery of the Eye; being the substance of that part of the Author's Course of Lectures on the Principles and Practice of Surgery which relate to the Diseases of that Organ: Published for the purpose of assisting in bringing the Management of these Complaints within the Principles which regulate the Practice of Surgery in general. By J. Guthrie, Deputy-Inspector of Hospitals during the Peninsular War; Surgeon to the Royal Westminster Infirmary for Diseases of the Eye, &c. &c. pp. 523. 8vo. London, 1823.

Anatomical Diagrams of Abstruse Parts of the Human Body. By G. D. Dermott, M. R. C. S. 4to. London. No. I. Peritoneum. pp. 8. With a Lithographic Plate.

A Short Treatise on Operative Surgery; describing the Principal Operations as they are practised in England and France. Designed for the use of Students in Operating on the Dead Body. By Charles Averil, Surgeon, Cheltenham; Fellow of the Royal College of Surgeons, London. 12mo. London, 1823. pp. 172.

An Outline of Hints for the Political Organization and Moral Training of the Human Race. By Robert Jackson, M. D. 8vo. Stockton, 1823. (In announcing the publication of this work in last Number, the name of the Author was accidentally omitted.)

The Medico-Chirurgical Review and Journal of Medical Science (Quarterly), collected by Associated Physicians and Surgeons, and superintended by James Johnson, M. D. 8vo. London. Analytic Series. No. XIV.

Anatomisk Beskrivelse over et Ved Nogle Dyr-Arters Uterus undersögt Glandulöst Organ. Af Doct. Med. H. Gartner, Regiments Chirurg, Medlem af det Kongel. Medicinske Selskab i Kiöbenhavn og Edinburgh. 4to. Kiöbenhavn, 1822.

De Actione Hydrargyri Medica, Part. I. & II. Auctor Carolus Otto. pp. 101 & 184. 8vo. Hafniæ, 1819.

Ludovicus Jacobson de Systemate venoso peculiari in permultis Animalibus observato. pp. 4. 4to. Hafniæ, 1821.

Supplementa ad Ophthalmiatriam. Auctore Ludovico Jacobson. 8vo. Hafniæ, 1821. pp. 24. Cum tabula aenea.

Sacra Natalitia Magni Ducis Badarum, &c. Præmissæ sunt Disquisitiones de relatione mutua inter tellurem et Atmosphæram, quoad Calorem et Fluidum Electricum. 4to. Heidelbergæ, 1819.

Communicationes Societatis Physico-Medicæ apud Universitatem Literarum Cæsaream Mosquensem institutæ. Voluminis IIdæ. Pars Ima. 4to: Mosquæ, 1817. Pars II. 1821.

Erinnerung an die Wirkung der in Dampfe aufgelöste Kochsalzsäure als Mittel zur Vorbeugung der Rindviehseuche und Hemmung ihren Verbreitung. 4to. Kiel, 1814.

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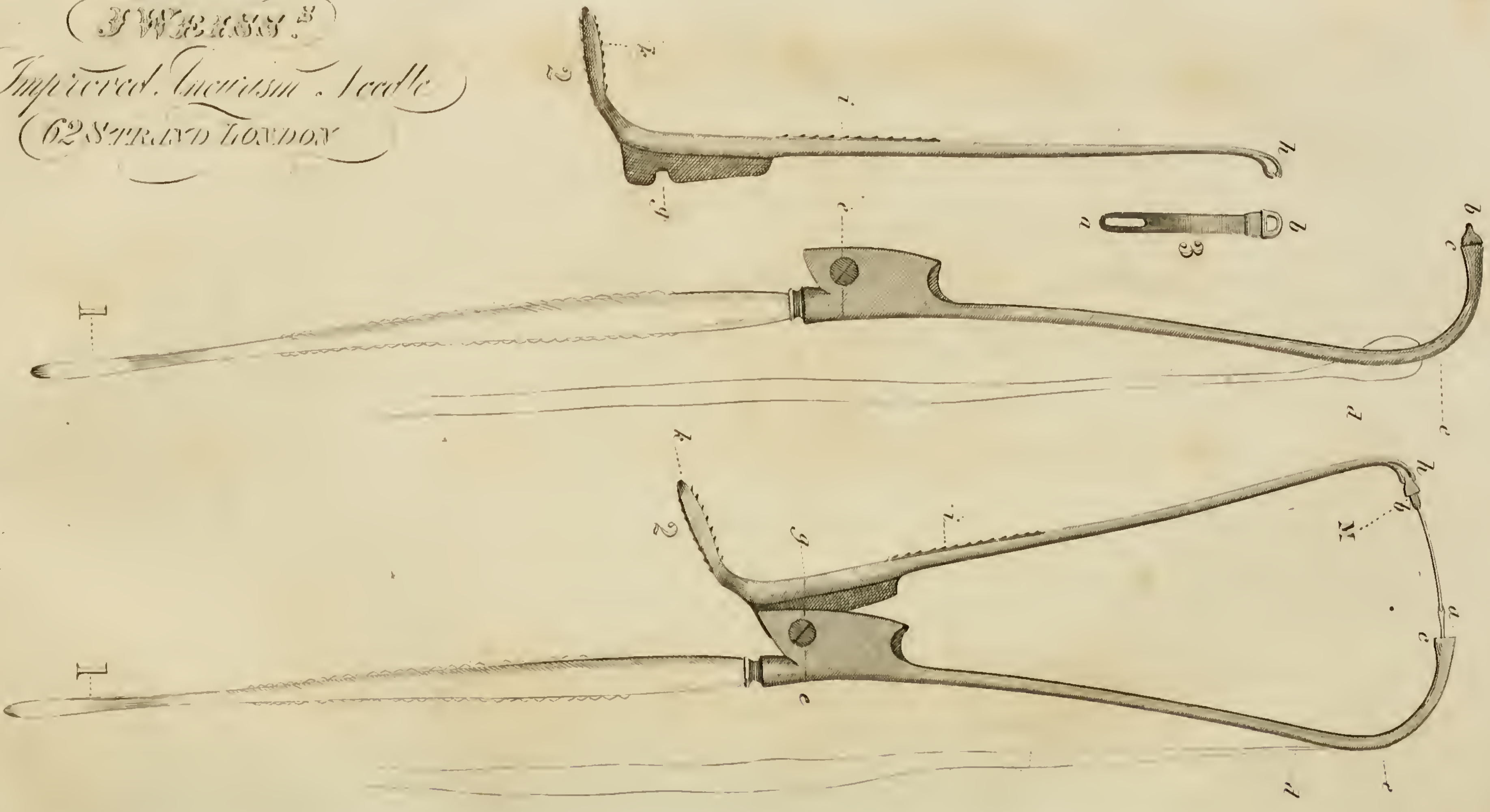

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. OCTOBER, 1823.

# PART I.

## ORIGINAL COMMUNICATIONS.

### I.

### *A Paper on Delirium Ebriositatis.* By ANDREW BLAKE, Member of the Royal College of Surgeons London, Surgeon to His Majesty's Fifth Regiment of Foot, and Principal Medical Officer of the Island of St Vincent.

THE affection described by Doctors Pearson and Armstrong, under the denomination of Brain Fever, and by Dr Sutton, late Physician to the Forces, under that of *Delirium Tremens*, I would call *Delirium Ebriositatis*, and define as follows:—Indirect debility of the nervous energy, succeeded by a morbid increase of action in the brain and nerves, attended with delirium, and terminating either in profound sleep, or in effusion on the brain. This is a disease peculiarly prevalent amongst the lower orders of Europeans, resident within the tropics, and hence becomes a subject well worthy of the attention of the Military Medical Officer, obliged to serve in such latitudes.

As the predisposing cause of this complaint is admitted, by all authors on the subject, to be the habitual abuse of diffusible stimuli, but more particularly of ardent spirit, it will of course occur in every part of the world where such customs prevail, and in the direct ratio of the facility with which such articles are attainable. The West Indies, where rum is an object of such little value, and where the debilitating effects of elevation of temperature excite the most temperate to allay their thirst, and thus lead insensibly to the acquirement of such habits, will appear a very likely residence to furnish frequent examples of this curious and alarming malady; and it will generally be met with in regiments, in proportion to the length of their residence in these islands. I have had frequent opportunities of observing its progress and effects, particularly within the last year, and shall now relate the result of the observations I have made on this subject. The authors already quoted, the only persons who, to my knowledge, have written on this disease, appear all to coincide, with but little variation, in the nature of its cause, and the *methodus medendi;* but they do not seem *to me* to have sufficiently explained its different stages and phenomena, and have omitted some of its pathological characters, as well as some essential points in the treatment, of this formidable complaint. From all the observations I have made, and more particularly from the Table which I shall subjoin, of the duration of the various symptoms of the cases which presented themselves in the right wing of the 5th regiment, within the year, I am induced, for the better description of the disease, to divide it into three distinct stages; and the regularity with which they have occurred, in every case, makes me consider it as a disease *sui generis,* somewhat similar in its progress to a paroxysm of ague, to which, indeed, it bears no small analogy, being, to the brain and nerves, what intermittent fever is to the arterial system. In the ten cases alluded to, the first stage, or that of nervous exhaustion, came on within five days from the date of admission into hospital, which may be regarded also as the date of abstaining from spirituous liquors. It succeeded to trivial affections of various sorts, such as slight febrile action, gastric derangement, &c. and, in one instance, to *ambustio.* These indispositions were always the immediate effect of excesses.

The first indications of the disease were usually as follows; —slowness of the pulse, frequently as low as 60 in a minute; coldness of the hands and feet, which were commonly bedewed with a clammy icy moisture, and accompanied with general debility and diminution of temperature, owing, of course, to the defect of sensorial or nervous influence. Cramp in the muscles of the extremities, with nausea and occasional vomiting, were also troublesome. The bowels were generally open, but sometimes the contrary. Nervous tremor of the hands and tongue, the latter being moist, and but slightly furred, formed also prominent features in this stage. All these were accompanied with dejection of spirits, frequent sighing, and oppression at the præcordia, anxiety, and depression of countenance, and short and interrupted slumbers, with alarming and frightful dreams.

As the second stage approached, the countenance gradually assumed a wild aspect, the patient became restless, and a peculiar quickness was observable in his answers, with an apparent anxiety to perform immediately whatever you desired, or even to anticipate you in what he thought you were about to require. I have been generally able to prognosticate approaching delirium by this last symptom. The duration of this stage will be invariably in proportion to the nature and extent of the cause, and the state of the constitution, and previous habits of the patient. Thus, in a young and healthy subject, where habits of excess have not been of long standing, and, consequently, where the resources of nature have not been much exhausted, nervous reaction, or the stage of excitement, will come on much quicker than in those persons whose systems have been worn out, by the repeated and destructive application of spirits to the stomach, and *vice versa:* it seldom however, under any circumstances, lasts more than a few hours.

When the second stage is established, a train of symptoms consonant with high nervous irritation follow; mental alienation in various degrees and forms is developed; and with this exertion of the nervous power to re-establish the state of energy, or rather excitement, which existed previous to the cessation of the application of diffusible stimuli to the nervous system, through the medium of the stomach, the heart and arteries sympathize, the pulse becomes quicker, though it continues small, and the heat of the surface increases. There is, however, throughout the disease, a marked difference between the temperature of the hands and feet, and the rest of the body; the former retaining, in some degree, the icy and clammy feel already spoken of, while the rest of the surface may become hot and dry. If this state continues long without amelioration, a clammy sweat pours from the skin, accompanied with high nervous irritability; the disorder of the mind increases; and objects of the most frightful forms present themselves to the imagination of the patient, and in positions in which, as Doctor Pearson says, it is physically impossible they can be situated. I recollect having seen a very distressing instance of this sort. The unfortunate sufferer, for a considerable time before his death, imagined he saw the devil at the ceiling above his bed; and as the disease, which terminated rapidly, increased, he fancied the evil spirit approached him, with a knife, to cut his throat; and actually expired, making violent exertions to avoid the fatal instrument. Fortunately, however, the disease does not always assume so violent a form; and, when judiciously treated, will in the greater proportion terminate favourably. The mental bias is generally of the melancholic sort, usually concerning some misfortune to which he was liable previous to his illness. Thus, a soldier will often think he is accused of some military crime; and his whole attention will be occupied in endeavouring to exculpate himself of it. If he has been much in service, he perhaps fancies he sees the enemy coming in at the window with fixed bayonets; and if he has been at any time of his life religiously disposed, he supposes he has committed some deadly sin, for which he cannot expect forgiveness; and calls frequently on his comrades to read prayers to him, as he is soon to appear before his God. During all this, he makes frequent endeavours to get out of bed; and cannot be convinced of the fallacy of his ideas: at the same time, he is generally tractable if properly managed, and will, in most instances, attend for an instant to what his medical attendant advises, and will even answer questions rationally; but he almost immediately relapses into his erroneous train of thought. From the moment delirium is fairly established, the patient is deprived of the restoring solace of "balmy sleep;" and is harassed by obstinate *pervigilium*, which may be looked upon as a pathognomonic symptom of the second stage of this disease. During this state, the countenance is particularly anxious, the tremor of the hands and tongue continue, and the latter becomes more furred; the urine is scanty and pale, and the bowels rather confined, or, if relaxed, the stools are dark coloured, the pupils are contracted, but there is no intolerance of light.

When these symptoms have continued for one, two, or even three days, where a fatal termination is not about to take place, I have always observed a gradual mitigation of them, accompanied with a strong tendency to sleep, exhibited by yawning and drowsiness, which, as soon as it supervened, in general became profound, and lasted from 6 to 18 hours, and occasionally longer, and constituted the third stage of this nervous paroxysm, or general relaxation of the nervous action, similar to capillary relaxation of the arterial system, in the sweating stage of ague, and to which, in every instance that I have seen, convalescence has regularly succeeded; but where the third, or sleeping stage, does not occur, the general symptoms increase in violence; the mind appears to labour under excessive irritation; and the patient makes violent and frequent struggles, attended with copious perspiration, which, as the disease advances, becomes deadly cold: the pulse increases in rapidity, becomes thready, and declines in strength; the tremor of the hands extends to the whole frame, and approaches to *subsultus tendinum*, though it does not exactly resemble that affection; the pupils become exceeding contracted, the countenance pale and anxious, the tongue brown and dry in the centre, the patient talks incessantly, and with astonishing rapidity, the delirium becomes excessive, and continues till a short time before death. In one case at this stage, the mind was so diseased, that after having desired the patient to put out his tongue, he continued for nearly half an hour drawing it in and pulling it out alternately, in quick succession, whenever I looked towards him, from a morbid association of ideas. There is generally, however, a calm previous to death, which in most instances takes place without a struggle. During the course of this disease, the patient seldom complains of any local pain; and if you ask him how he feels, will answer that he is very well.

I have thus briefly described the three stages which have presented themselves to my observation in this disease. The first, or stage of exhaustion, we may compare to the cold stage of ague; the second, or that of nervous excitement, to the hot fit; and the sleeping, or third stage of this disease, to the sweating stage of intermittent fever.

The predisposing cause of this affection is agreed upon by all authors to be the habitual and excessive abuse of ardent spirits, though this predisposition may be induced by the immoderate and long continued use of any of the diffusible stimuli.

The exciting cause appears to me to be the sudden cessation of the application of such stimuli to the nervous system, (through the medium of the digestive organs), the powers of which sink, in consequence, to the lowest ebb; and in endeavouring to rally, and establish the equilibrium between the nervous and vascular systems, its efforts exceed the debilitated faculties of the sensorium, and thus excite delirium. It appears immaterial under what form the immediate excitement follows the predisposing cause; the complaint, when it occurs, is always the same. When this disease terminates fatally, it does not seem to me to be owing to venous congestion, as Dr Armstrong asserts in his valuable work: I would rather ascribe it to serous effusion within the cranium. We are told by Baron Larey, that "in paroxysms of rage, and all violent passions of the mind, the function of absorption appears to be suspended; and consequently, an accumulation of fluids obtains at these times in the serous cavities." The irritation which exists during violent delirium, must be equivalent to violent passions; and consequently produce the same effect. Dissection, as far as my experience goes, bears me out in this opinion. The fatal case which occurred during this year, afforded ample proof of my assertion. The result of the examination was as follows—(the report is drawn up by Mr Home, hospital-assistant to the Forces, who aided me in the *post mortem* examinations).

"On bringing the surface of the brain into view, it did not exhibit any marks of recent inflammatory action; and, with the exception of a small quantity of coagulable lymph, which, on removing the dura mater, was found thrown out between that coat; and the tunica arachnoidea appeared otherwise healthy. All the ventricles contained a considerable quantity of serous fluid; but more especially the two lateral, which were very much distended. The choroid plexi showed no marks of turgescence. The contents of the thorax and abdomen assumed a natural appearance: the liver was small sized, but healthy in its parenchyma."

The diagnosis in this disease is not difficult, if attention be paid to the symptoms already detailed, and which do not resemble those of any other disorder. There may, however, it is thought, be some little doubt on the minds of those unaccustomed to meet with cases of this kind, in distinguishing it from mania. Dr Armstrong mentions two cases, which assumed the character of confirmed madness, in consequence of which, he says, "There can be no question but this disorder may identify itself with the true mania in peculiar subjects." As a mark of distinction in this species of alienation, it is said that the hallucination is solely concerning the patient's private affairs; but this I have not always observed to be the case, though it generally is so: besides, it is alleged that, in mania, the mental aberrations may be on the same subject. Perhaps we should arrive nearer at a pathognomonic distinction in stating, that in cases of mania, the mental derangement increases at the appearance of daylight, while the contrary is the case in the disease in question; all the symptoms becoming more violent at night, and undergoing a sort of remission as the day begins to break. By this it would appear, that confirmed madness is beyond the powers of febrile revolution, while this disease is still within its precincts.

Some difficulty will be experienced in forming a just prognosis in this disorder, it being so very insidious in its effects. In giving it, we must of course be guided by the constitution and habits of the patient, as well as by the violence of the symptoms with which he is affected. In worn-out and diseased habits, much addicted to the abuse of spirituous liquors, more is to be feared; as in these cases, the indirect debility or exhaustion may be such as to require an effort too great for their worn-out nervous system to support, in its endeavouring to restore order. On the contrary, in young and healthy subjects, this disease is seldom fatal, when properly treated; but in either cases, we shall be considerably assisted in our opinion, by attention to the favourable or unfavourable symptoms, detailed in the commencement of this paper. The state of the pulse has always been to me a very sure guide; as, when its frequency did not exceed 100 strokes in a minute, I looked on the patient as safe: on the contrary, when, from its rapidity and the tremor of the hands, it could scarcely be counted, I considered him in imminent danger.

In the method of cure, I would recommend that particular attention should be paid to the various stages of this complaint; and as, in each, a different series of symptoms exists, so I would suggest a deviation in the mode of treatment. The age, temperament, habits and integrity of the constitution of the patient, become also necessary objects for our consideration. Very great care should likewise be taken to sooth all irritation of mind, by every moral as well as physical means. During the first stage, much may be done, the disease cut short, and a prevention of the second stage attained under proper management. If we are fortunate enough to see the case before delirium has set in, we ought to prescribe according to symptoms. Thus, if slight gastric derangement is present, with nausea and occasional vomiting, I have found effervescent draughts, in which were ten drops of laudanum, administered every second hour with emollient, and, if necessary, anodyne enemata, very efficacious. In the intermediate hours, I have been in the habit of giving an ounce of rum, with a little warm water and sugar; and of prescribing the warm bath, or tepid affusion, or even the cold affusion, according to the strength of the patient, and probability of the production of arterial re-action. Thus, in a young and healthy subject, I would have recourse to the cold affusion, and *vice versa.* If the warm bath should be preferred, it ought not to be of a temperature high enough to induce indirect debility. I would also recommend anodyne frictions to the epigastrium; and that the head should be shaved and well rubbed with strong volatile liniment, so as gently to stimulate the surface of the scalp. In the event of the stomach being retentive, and not at all affected by nausea, I gave an ounce and a half of camphor mixture, with twenty or thirty drops of æther, and ten drops of the tinctura opii, in lieu of the effervescent draughts, when the appetite allowed it. I permitted soup, arrow-root, sago, or any other mild nourishment, to be taken in moderate quantities; but the stomach was in general so weak, as not to call for any thing more than what was given him in the way of medicine. My reason for ordering rum, in preference to other stimulating liquor, is, that the patients who have been under my care have been accustomed to that spirit; to patients of a different sphere in life, I would allow wine or porter, as the circumstances might indicate. When constipation prevailed, I found a drop of the croton oil a most useful medicine, as, in addition to its efficiency as a purgative, it appears to act through the medium of the nervous system, and therefore becomes a desideratum in this stage of the disease. At this particular stage of the complaint, or that of exhaustion, I would not have recourse to large doses of opium, as is indiscriminately recommended by authors; my object at this period would be to raise the lowered scale of nervous power, not by overwhelming it with over-doses, but by the gradual effect of stimulants, and the aid of opium, in quantities calculated to allay irritation, without increasing debility. The means here mentioned, should be persisted in, with modifications, as the symptoms increase or diminish; and with a view to the general principles already laid down, which, if properly administered and attended to, will in many cases cut short the disease, by averting the second stage, and inducing sleep, in the same way as the warm bath in the cold stage of ague may bring on diaphoresis, and thereby shorten the paroxysm. I have witnessed this effect in several instances lately.

If, however, after all our efforts, the second stage, or that of nervous reaction, should supervene, we must not be discouraged, but then act on the principles generally recommended, namely, by the administration of full doses of opium, taking care at the same time to support the efforts of the system, by the assistance of diffusible stimuli, and antispasmodics, such as rum, brandy, wine or porter, and camphor mixture with æther, as directed in the first stage, varying their administration according to circumstances. To these I have been in the habit of adding calomel and Dover's powder, say two grains of the former, and six of the latter, every two hours, until the system became affected, or the disease yielded. Mercury may be of service here, from its deobstruent and equalizing effects. The warm bath should also be prescribed with the same view; but particularly to sooth nervous irritation, and favour an equal distribution of the blood, by exciting general perspiration; during the absence of which, cold applications ought to be constantly kept to the head, in order to diminish sensorial action. The state of the bowels ought to be watched, and whether costiveness or the nature of the egesta render evacuations necessary, the croton oil becomes as essential a remedy in this as in the first stage.

We must persist in this mode of treatment until a favourable change is foreseen, which will manifest itself by a diminution of all the symptoms, and a tendency to sleep. Care must be taken, at this particular approach of crisis, not to interfere too much with the intentions of nature, by over-doses of medicine, particularly of opium; and I must here mention that I think, after a certain fair quantity of that active drug has been administered, we ought to be cautious in giving more, without allowing sufficient time to intervene between the doses; for, as Dr Pearson observes, "if they do not succeed at their first operation, they add much to the intellectual confusion, and are fraught with danger." It does not appear to me to be of any service to attempt to break the chain of morbid concatenation too abruptly, as the stage of mental irritation seems to require a given time to subside, in proportion to the duration of the stage of exhaustion, to the mode of treatment adopted, and to its previous causes.

From the beginning of this stage, our most particular attention ought to be directed to the moral management of the patient, and we must endeavour, by all the means in our power, to gain ascendency over his mind, without having recourse to coercive measures; in fact, the principles laid down by Pinel, in cases of mania, become particularly applicable to this disease; but, as they are generally known, a recapitulation of them here is not necessary. Should sleep come on, it will be at first disturbed, and accompanied with nervous startings; it is therefore to be encouraged by all the means in our power. All noise should be avoided; and in climates like this, a mosquitto net ought to be let down, so as to preclude any annoyance from insects. Should the patient awake soon, he will often be in a state of alarm and nervous agitation; but if some warm stimulating drink, with a moderate dose of opium, be given, and mild and assuring conduct adopted, he will, almost in every instance, very soon fall into a profound sleep, from which, through the restorative effects of "nature's soft nurse," he generally awakes perfectly rational; after which, we have little more to do than support the strength, and gradually diminish the quantities of stimuli which we have been in the habit of administering, so as to bring the constitution back to a healty and moderate degree of excitement. Should sleep not supervene in this disease, and untoward symptoms, such as has been described in the course of this paper, ensue, we must persist in the general principles of our treatment, but with variation according to existing indications. Thus, at this period, when effusion has either commenced, or is about to take place, I would recommend, contrary to the general opinion, the application of a blister to the head, and the liberal administration of musk and ammonia. I would also blister the extremities, order mercurial frictions, to excite the action of the absorbents, and continue the use of the warm bath; though, where the symptoms have attained this height, I fear little benefit can be derived from medical assistance, as it is more than probable, effusion has taken place, which is generally the forerunner of death.

I have not taken any notice of blood-letting as a remedy in this disease, as I have seen but few cases requiring it; however, I do not say that it may not become a necessary, and a very efficacious auxiliary, when practised in young and vigorous subjects, and particularly during the height of the second stage of this complaint; but it is on no account to be carried further than merely to relieve the temporary morbid excitement, to effect which, the detraction of a few ounces of blood will be usually sufficient, and a repetition of it seldom necessary.

I have now terminated what I had to offer on the subject of this interesting disease; and, in concluding, I beg the indulgence of my readers for trespassing so much on their time, with so ill digested a composition. But as it would be rather too much to expect that every army surgeon should be endowed with the qualifications necessary to render him capable of being an author, and at the same time it would be culpable in him to withhold, on such grounds, the results of his experience in the pathology and treatment of an affection, which is, as yet, not generally understood, I have chosen rather to expose myself to the tribunal of criticism, than to incur the stings of self-reproach.

TABLE, showing the Duration of the various stages of the Cases of *Delirium Ebriositatis*, treated in the Regimental Hospital of the Fifth Foot, in the year 1822.

| *Cases.* | *Age of the Patient.* | *Date of Admission.* | *Date of the commencement of Mental Derangement.* | *Date of the commencement of the Sleeping, or Third Stage.* | *Date of Death.* |
|---|---|---|---|---|---|
| | Years. | | | | |
| First. | 32 | 5th June 1822. | June 8th 1822. | June 10th 1822. | — |
| Second. | 40 | 21st — — | — 24th — | — 27th — | — |
| Third. | 32 | 9th Aug. — | Aug. 11th — | Aug. 13th — | — |
| Fourth. | 32 | 17th — — | — 20th — | — 22d — | — |
| Fifth. | 32 | 1st Sept. — | Sept. 4th — | Sept. 6th — | — |
| Sixth. | 36 | 12th — — | — 15th — | — 17th — | — |
| Seventh. | 40 | 14th — — | — 18th — | — 21st — | — |
| Eighth. | 32 | 25th — — | — 27th — | — 30th — | — |
| Ninth. | 31 | 30th — — | Oct. 5th — | Oct. 8th — | — |
| Tenth. | 33 | 3d Nov. — | Nov. 5th — | ———— | Nov. 7th 1822. |

## II.

## *History of "Epidemic Cholera," as it appeared on board His Majesty's Ship Malabar, on its passage from Bombay to the Equator, in the month of April* 1819. By W. Robson, M.D. late Physician to the Forces.

"—quibus concurrentibus, non mirum est, si subito quis moritur: Neque tamen ulli morbo minori momento succurritur."—*Celsus*, Lib. 4. 11.

The spasmodic or epidemic cholera has of late years excited considerable interest, on account of its destructive progress through the whole of the peninsula of India, the islands of Ceylon and Mauritius, and several other islands in the Indian Ocean. The opinions of medical practitioners have been much divided about the origin of this disease, as well as the practice. The pathology of it also appears to be very little understood. The exciting cause of the disease has, by some, been supposed to be bad rice; by others, it has been ascribed to contagion; and, by the greater number, I believe it has been considered to be epidemic, without any attempt to account for its origin.

The opinion that it was occasioned by the use of bad rice, or any other provision in a state unfit for consumption, appears to have been sufficiently refuted by the history of the progress of the disease. That it was contagious, has also probably been sufficiently refuted by many facts and observations. There appears little doubt of its epidemic nature, and that its progress was made in the same manner as that of the catarrh, or any other disease epidemic, and probably not contagious. Without pretending or attempting to throw any light on this obscure subject, I propose, in this paper, to give a short account of the disease as it appeared among the crew of his Majesty's ship Malabar, on the passage from the coast of Malabar to the equator.

The crew of the Malabar, consisting of upwards of two hundred seamen and marines, had served nearly three years on the Indian station in the Orlando frigate. During that period, they had at intervals suffered severely from fever and dysentery, particularly while lying in a hulk in the harbour of Trincomali, in the summer of 1818, at the time when the frigate was undergoing a repair.

In the succeeding January, the Orlando sailed for Bombay, where the crew were employed in rigging and fitting for sea the Malabar man of war, then newly launched, and loading her with the timber already prepared for constructing another ship of equal rate, on her arrival in England.

During that period the crew had been unusually healthy. They had worked hard, but their comforts were much attended to in other respects; and they had regular sleep by night in their births, which they had for some weeks occupied in the Malabar.

On the morning of the 5th of April the ship left the harbour of Bombay, and proceeded to sea on the voyage to England. On the morning of the 6th, I was informed by the surgeon, a very active and intelligent medical officer, that he had been called, soon after midnight, to a seaman, who had been brought into the sick-bay, labouring under most violent symptoms, which appeared to be those described as belonging to the spasmodic cholera. The complaint had proved fatal in a few hours, notwithstanding the application of the most powerful antispasmodic remedies.

In the course of the next night two more cases were brought into the sick-bay, affected in a similar manner, and both terminated fatally in a few hours. One of the patients was a marine, who was attacked, when on duty as a sentry on deck, outside the door of a cabin on the poop. They had both been severely purged before any complaint was made. They were treated with tincture of opium and æther, in large doses, arrack, brandy, stimulating frictions, and warm fomentations, without any relief. In one of the cases, venesection was employed without apparent benefit. On the morning of the 7th, several very severe cases presented; one of which was the captain's steward, a black man, a native of the West Indies. I was requested by the surgeon to see him and the others, and to consult with him on the treatment. The steward had laboured under diarrhœa for several days previously to leaving Bombay, but made no complaint till 10 o'clock on the morning of the 7th. As, in addition to the other symptoms, he complained of some degree of pain on pressure of the abdomen, he was bled to the extent of ℥ xvi., when syncope had nearly supervened; and the warm bath was also used, without any permanent relief, as he sank very rapidly, and died about six o'clock *p. m.*

The symptoms, generally, were great thirst, constant retching, and vomiting of a whitish coloured mucous substance, sometimes frothy, and of a watery appearance, and frequent discharges of a similar matter from the rectum, attended with violent tormina and tenesmus. The features were much collapsed; the eyes dull and glossy as the disease advanced; the pulse very quick and feeble; the toes and fingers much shrivelled, cold, and apparently bloodless; much oppression at the precordium, with dyspnœa; violent spasms in the muscles of the abdomen, thighs and extremities, particularly in the arms, and probably also in the diaphragm. The skin was generally cold, and partially covered with clammy sweat. The pulse frequently could not be felt for some time before the fatal termination; but the violent distress, retching and cramps generally continued to the last, though the functions of the sensorium were unimpaired.

As every medicine hitherto given had been rejected from the stomach, enemata, with tincture of opium, in considerable quantity, were administered, but without benefit. The warm bath, in several cases, gave only temporary relief. As venesection, in the two cases in which it was performed, appeared rather to have had a pernicious than a beneficial effect, and as even calomel, in doses of gr. v. and x. with tinct. op. ʒ ss. & ʒ i. had always been vomited, or at least produced no favourable effect, and every case had hitherto terminated fatally, it was thought advisable to try the combination of calomel with opium in the form of pill. The success of this practice was very soon remarkably evident. The combination was given every two hours in the quantity of extr. op. gr. i. with hydrar. submur. ℈ i. In very violent cases, where the disease had been of longer continuance, and the patient was brought in almost *in articulo mortis*, the medicine was given in double that dose. The first good effect of the pills being retained in the stomach was to allay the retching, vomiting, and tormina, gradually followed by an abatement of the severe cramps, a return of the pulse at the wrist, and a copious warm perspiration. In the course of a few hours, there were generally several copious bilious evacuations from the rectum; the pulse became more full and slow; and, in consequence of the circulation being generally equalized, warmth was restored to the extremities, and the shrivelled and exsanguine appearance of the toes and fingers before mentioned gradually disappeared. It was seldom found necessary to repeat the medicine above three or four times; and, in general, the convalescence was regular, though slow, in consequence of the very strict attention to regimen and the state of the intestinal canal, which was necessary, and, in many of the worst cases, the very severe ptyalism which followed the exhibition of the larger doses of the submuriate of mercury. I am in possession of very short notes on the subject; yet I am confident that not above two or three cases terminated fatally after the treatment above described was adopted; one of which relapsed, and the others were brought into the sick-bay at the last extremity. The greatest attention was paid by the captain and the other officers; and strict orders were given to prevent the men from sleeping on deck during the night-watches, and for the petty officers to watch and report the first appearances of indisposition; but, nevertheless, so characteristic is the thoughtlessness of sailors, that they, in many instances, allowed themselves to be affected with tormina and diarrhœa, which were generally the first symptoms for several hours before any complaints were made.

I find it set down in my notes, that in all *eighty-nine* cases were treated, of which *fourteen* terminated fatally,—a much smaller mortality than is recorded in any of the reports which I have seen from the different places where the disease prevailed, with the exception of the reports of Mr Corbyn and Dr Burrel, in the 64th Number of the Edinburgh Journal, published 1st July 1820. The former, it appears, treated 108 cases out of 110 successfully, with large doses of calomel and laudanum, and peppermint in water. Such treatment would have failed altogether in the disease as it appeared on board the Malabar, as liquids of every description were immediately rejected by the stomach. The practice of Dr Burrel, it appears from the Report, was to bleed in every instance, and then to administer calomel and laudanum in large doses. This practice was equally successful, as he lost only two patients out of 88 so treated. With respect to venesection, I am convinced, that it would have failed in every instance on board the Malabar; so that although the patients, in both cases, were Europeans, the constitutional circumstances, and probably also the symptoms, must have considerably varied. The disease certainly appeared to be rather of a spasmodic than an inflammatory character; and if there be any truth in the aphorism of Boerhaave, (I believe), "Debilitas gignit spasmum," surely the most powerful cordial and antispasmodic medicines were in the first instance indicated, instead of evacuants, unless venesection be considered to act as an antispasmodic.

There were only two officers, out of more than twenty, attacked with the disease,—one a midshipman, the other a master's mate, who was much addicted to drinking. They both recovered, after a severe struggle in the case of the latter, and a long continued ptyalism. One woman passenger, out of four, was attacked; but none of the children, of whom there were four or five on board. The woman also recovered, after a severe and long continued illness, with only a slight affection of the salivary glands.

There were only two bodies inspected after death, at the commencement of the epidemic; and, in these, only the viscera of the thorax and abdomen, where were generally observed appearances of vascular congestion.

In a tropical climate, on board ship, in a crowded sick-bay, where there were incessant calls, day and night, to administer to the most alarming symptoms of disease—where, in the appropriate words of the Roman poet,

> ————————" *horæ*
> *Momento aut cita mors venit, aut victoria læta* "—

leisure and opportunity were equally wanting to investigate the morbid appearances so important and interesting in similar cases, under other circumstances.

The epidemic continued to rage from the 5th to the 24th of April, on which day the last case appeared. The ship was then near the equator, which was passed on the 30th of the month, after the usual delay from calms and irregular breezes. The thermometer had ranged from 85° to 88° since our departure from Bombay; and, upon the whole, the weather had been fine, with the exception of some squalls, attended with thunder and rain, which were encountered, as is common, off the coast of Ceylon.

The epidemic had prevailed at Bombay in the preceding autumn, but had disappeared for some months previously to the departure of the Malabar from that presidency. It was, however, raging among the native inhabitants at Cochin, on the Malabar coast, in the month of March, as I was informed by the Company's surgeon at that station, in my passage from Ceylon to Bombay in his Majesty's ship Minden. We left the last named vessel in the harbour of Bombay, with the crew in good health; nor did the cholera appear at Trincomali, the station for men of war in the island of Ceylon, until several months afterwards. As the disease made its first appearance on the very night when the ship left the harbour, it can scarcely be ascribed to any change in the habits or discipline of the seamen and marines acting as a predisposing or exciting cause. There was an abundant supply of fresh provisions and water, both of which were added to at Cochin on the 10th of the month; and great attention was directed to the health and comfort of the crew.

When we left Bombay, the monsoon was blowing strongly from the south west.

Of the remote and proximate causes of the disease, I do not profess to know any thing. The *ratio symptomatum* appears to be almost equally obscure; and therefore the practice ultimately adopted, though in a great degree successful, was almost purely empirical. I had found from experience, that small doses of calomel and opium were often very useful in restraining vomiting, and removing the irritability of the stomach, which takes place in the advanced stage of remittent fever; and as these medicines, given separately, had produced no apparent effect, it was consequently suggested to try them in combination.

Calomel in very large doses has been supposed to act as a sedative, though that operation may certainly be doubted. In this instance, may it not be supposed to have acted beneficially, by exciting into action the whole of the chylopoietic and assistant chylopoietic viscera, particularly the hepatic system, and in this manner equalizing the circulation, and carrying off, whatever might be its nature, the deleterious agent acting so powerfully in the depression of the circulating and nervous systems? In this operation, the action of the calomel might be much assisted by having its absorption promoted by the stimulating power of the opium, while the irritability of the stomach was allayed by its anodyne influence. In whatever manner these medicines act separately, the " *tertium quid* " resulting from their combination exerted a powerful, and, perhaps it may be said, *specific* effect. The well-known operation of this combination as a *sudorific* might also have a powerful beneficial effect.

I do not know that ptyalism was necessary to the resolution of the disease; and I am exceedingly unwilling to come to that conclusion, from having too often had occasion to observe the destructive consequences of the mercurial practice, so strongly inculcated by some modern practitioners in the treatment of intermittent and remittent fevers.

Although salivation, to a certain extent, took place in all the cases which recovered, it appears probable that the disease, if taken in every instance at its commencement, might have been successfully combated with a smaller proportion of the submuriate of mercury, in combination with the same quantities of opium, with less consequent suffering to the patient, as well as economy of his constitutional powers;—but " no season then for counsel or delay: " the practice once found to succeed, was had recourse to in every instance—" *ea visa salus morientibus una.* "

The term " epidemic cholera " has been objected to, in consequence of the progress of the disease in opposition to the *monsoon* in some instances, as well as perhaps to some of the other usual laws of the progress of epidemics.

The epithet "spasmodic" has also, I believe, been considered improper, on what grounds I do not know, unless that it may be thought to be a *pleonasm*, in consequence of cholera having been placed by Cullen among the order "Spasmi." The definition of cholera by that illustrious nosologist, certainly does not apply to this disease, as there is neither vomiting nor passing of bile by the rectum. In the seventh edition of his Synopsis, he mentions "Cholera Indica, sp. 7," but does not define that disease. This epidemic resembled, in many of the symptoms, that which has been called "*Mort de chien*," as described by Mr Curtis and Dr Johnson to have occurred formerly in the ships of war on the Indian station, and to have been perhaps occasionally *endemic*, or produced by exposure to vicissitudes of temperature in the harbour of Trincomali; but the practice so strongly recommended by the last named writer, would probably have proved destructive in the treatment of the epidemic as it appeared on board the Malabar.

## III.

## *On the Advantage of an early Operation for the different Species of Cataract.* By JOHN STEVENSON, Esq. Fellow of the Royal College of Surgeons, &c. &c.

"Multum adhuc restat operis, multumque restabit; nec ulli nato post mille secula præcludetur occasio aliquid adhuc adjiciendi."—SENECA.

THE disease of the organ of vision termed Cataract, consists, it is well known, in an opacity of the crystalline lens, or its capsule, constituting one of the most interesting amongst the numerous class of ophthalmic complaints; and the attention which has of late years been bestowed upon it, is commensurate with its acknowledged importance.

Unless we have reason, from the nature of the existing cause, or from other attendant circumstances, to suspect that inflammation is connected with, or may be regarded as the primary source of the disease, I believe no reliance can be reposed in any of the boasted remedies which have been supposed by some, and particularly foreign writers, to possess an almost specific influence in resolving the opacity.

Whenever, therefore, the malady is decidedly established, and is the result of an internal and occult cause, it will prove worse than a waste of time to attempt its dispersion by medical treatment.

As it is generally admitted by the best practitioners, that the cure, at least in the advanced stage of cataract, and in the absence of any inflammatory excitement, can be achieved only by the aid of operative surgery, the inquiries on the subject have been properly directed to the consideration of the most efficient and appropriate method of removing, by mechanical expedients, the obstructing medium from the axis of the pupil. For this purpose, several ingenious operations have been devised, on the respective merits of which, and on the modes of performing them, it is not my intention at this time to enlarge or animadvert. I will only remark, that, under certain circumstances, each process has its peculiar advantages; and that, instead of our being guided, as the abettors of each have too generally allowed themselves to be, by a slavish attachment and unvarying adherence to any one mode, to the rejection of every other, that mode ought unquestionably to be preferred, which seems best suited to the individual character and particular circumstances of the disease.

Whichever operation has been determined on, it has hitherto, with general consent, been reserved for that period of the ailment when the sight has become greatly impaired, or nearly extinguished. It has not, I believe, if judgment may be formed from the various publications on the subject, as well as from the private practice of the most eminent surgeons, occurred to any one to recommend the performance of an operation, without regard to the kind or maturity of the cataract, so soon as its character has become sufficiently disclosed, to enable us to decide upon the real nature and tendency of the complaint.

Before engaging in the formal discussion of my subject, let me obviate the possibility of misconception on the part of the reader, as to the purpose and extent of my views. I must beg, therefore, on the very threshold, to premise, that it is not my design in this paper to inveigh against, or endeavour to explode, the *ancient processes* for the cure of cataract. So far from reprobating extraction, for instance, I am ready to admit, that when, from existing phenomena, there is cause to believe that the lens has actually become indurated, and that neither the form of the eye, nor the accompanying symptoms, contraindicate its removal through a section of the cornea, *that* mode of operation, even with its acknowledged difficulties and dangers, is the most eligible. Under such circumstances, it is, in my opinion, a less hazardous process (especially if the eyeball happen to be preternaturally small, as is not unfrequently the case in old persons) than *depression.* By the complete extirpation of the diseased crystalline, provided the capsule be properly destroyed or removed, it may be said to effect a *radical* cure, ("radicitus tollit,") whilst those occasional relapses and disappointments are avoided, which are so apt to render abortive the most skilful effort to couch, in consequence of the depressed cataract sometimes emerging from the new situation it had been made to occupy, and resuming again its natural position behind the pupil. To this argument may be added, the risk of injuring, by the needle on the hard cataract, the more sensitive and deep-seated membranes of the eye.

The method of treatment, which it is the immediate object of the present communication to recommend, is not a fanciful and speculative suggestion, but the satisfactory result of *several* years extensive public and private practice. It applies to a period of the disease when neither of the common operations is available, and cures, if I may be allowed the expression, by *anticipation*. For it aims at no less a purpose than the *prevention* of actual blindness, by taking advantage of the agency of the absorptive process, *before* the lens has become so far disorganized, as to occasion more than an imperfect eclipse of vision. Its claim to approbation rests not only on the greater facility and safety with which the proposed plan can be executed; but likewise on there being much less liability to subsequent inflammation; on the rapidity with which the cataract is generally absorbed, and the impossibility of a *secondary* one supervening; the more perfect state in which the organ is left, than after either extraction or couching; and above all, on its obviating the inconvenience arising from the necessity the patient is under of waiting for an indefinite time, until the lens may have become what is, by a misapplication of terms, called *ripe*, or has acquired an adequate degree of firmness, to admit of the ordinary operations; a period which may, after all, never arrive. For it is a well-known fact, that the lens, after losing so much of its transparency, as materially to interrupt its function, sometimes remains stationary at this point, without ever advancing to such a total alteration of structure, as to fit it for the usual processes of couching or extraction. The patient, under these circumstances, may be kept in a state of disquietude and suspense, not only for weeks and months, but sometimes even for years! In the second edition of my "Treatise on Cataract," the case of a poor man, brought to me by Lord Carrington, is detailed, who waited in this helpless condition, and in the vain expectation of the arrival of that period when the cataract might be pronounced *ripe*, for *nearly half a century!* Even at the expiration of this protracted period, the lens still continuing too soft for the intended operation by extraction, I introduced the needle in the manner recommended, and fortunately succeeded in restoring him to sight.

With the exception of the above very unsatisfactory motive for deferring the requisite operation, I know but of one cogent argument which can be adduced in favour of procrastination. I allude to the patient being allowed, by such indulgence, the longest possible enjoyment of his imperfect vision.

But is it a mark of wisdom, for the sake of a prospective, and, at most, contingent advantage, and of preserving for a short period a defective sight, which will perhaps become daily worse, to risk the loss of present and more certain means of relief? If a limit could be fixed beyond which it would not be necessary to postpone the intended operation, the intermediate delay would be less irksome and intolerable. But where is the practitioner who has the sagacity to foretel when the incipient cataract will be ready for the alternative of extraction or couching? And what patient, already in a state of comparative blindness, possesses fortitude sufficient to enable him to support, without the most distressing apprehensions and misgivings, a condition of existence which, though without pain, is not free from numberless privations and inconveniences, and of which he cannot foresee the termination?

But further, who dares assert that, during this interval, a variety of accidents may not occur to render the operation not only more difficult of execution, but, even if accomplished, more equivocal in its issue? Admitting even that the lens may have acquired that degree of solidity which is essential to the success of the ordinary processes (a result of which, it should be borne in mind, we never can be certain), the state of the eye itself, or some accessory disease, may forbid their adoption at the period of maturity, or render them less eligible in many respects than that by absorption,—a mode of proceeding which, though not absolutely impracticable, is, it must be confessed, ill adapted to the indurated, or ripe state of cataract.

Thus, then, we see the possibility of our sacrificing, by such delay, the advantage of which, at an earlier period of the disease, we might have availed ourselves; namely, that of choosing the most appropriate mode of treatment.

Nor is this the only disadvantage we may have to encounter in consequence of this temporizing conduct. The retina, by disease, frequently loses much of its original sensibility; so that on exposure again to the full effulgence of light, after a long comparative exclusion from its rays, it sometimes continues anæsthetic. Even though the nerve subservient to vision, on being once more impressed with its natural stimulus, may have regained, for a time, a considerable share of its former sensorial energy, nevertheless, instances are not very unfrequent, in which the perceptive power gradually fades away, until at length amblyopy succeeds, and terminates eventually in complete amaurosis. The patient to whom I have already alluded is an example of this fact; for, notwithstanding he so perfectly recovered his sight as to be able, at the age of nearly fifty, to learn to read his Bible, and to distinguish, by the aid of proper convex spectacles, the smallest objects, yet, in the space of two years after the operation, and without any assignable cause, or apparent local derangement in the eye, his vision became more and more defective, until at length he was reduced to a state little short of total blindness, the humours still remaining perfectly transparent. Two other cases of a similar description have likewise fallen under my notice.

Would the author, then, it may be asked, deem it justifiable to urge a patient afflicted with cataract to submit to an operation while he is still endowed with sufficient sight to guide himself, and to perform all the ordinary duties of life, although he might not be competent to attend to those minuter offices, or embrace those various gratifications, which require for their indulgence nicer and more accurate vision? This inquiry involves in it many collateral considerations; among which, the age of the patient, and the value which he may attach to his capability of continuing his personal exertions, must hold the first place. If, with the sense of impaired, and actually decreasing sight, and the prospect of eventual blindness, he is unwilling to avail himself of the benefit that an operation would be likely to afford, he has no other alternative than to be left to his fate, and the consequences of his own choice. But, were my opinion to be appealed to as a guide to direct his judgment, I should not hesitate to suggest the propriety of having *immediate* recourse to the needle, provided the disease was the result of an internal and unknown cause, and no unfavourable symptom existed to forbid the operation.

To be more particular. Granting, for the sake of illustration, that the cataract has made its appearance in one eye, and is attended with the usual imperfection in sight, whilst in its associate organ only the very *slightest visible* opacity, with a corresponding, and scarcely perceptible interruption to its function, obtain; would it, in such a case, be proper to resort to the curative process recommended, or to postpone the operation until the disease is more fully established in both eyes? If the patient has an hereditary disposition to the disease, and especially if the cataract is of the lenticular species, and has come on without any assignable cause, I should have no difficulty in answering the question in the affirmative; or, in other words, in proposing to have immediate recourse to the absorptive plan of cure. For the disease, *whilst recent*, (whether it be of a simple or compound character, or consist of an opacity of the lens, or capsule only, or of both combined; whether it be congenital, secondary, or even adherent;) is, in any of these states, equally assailable by the needle; by the agency of which, the operator is enabled to act upon each respective modification of cataract, so as to subject the disorganized and divided parts to the process of absorption; and, what is a still stronger recommendation of the proposed means of cure, the operation may be resorted to under all the varying circumstances mentioned, not only with great probability (I had almost said moral certainty) of success, provided the other textures of the eye are sound, and due care is taken to perform the operation with the requisite delicacy and address; but with a very trifling degree of present pain, and little risk of subsequent inflammation. For, as cataract seems frequently to excite a disposition to phlogosis in the organ of vision, the shorter the period it is allowed to exist, the less tendency there probably will be in the vessels of the eye to take on morbidly increased action; and, even in the event of inflammatory excitement occurring, it is more tractable, and yields with greater certainty, than at a more advanced period of the disease.

But, further, inflammation generally arises either from violence during the operation, by rude attempts to do too much at once, in the hope of effecting a rapid cure by a single introduction of the needle; from the pressure of detached portions of a somewhat hard lens against the internal and sensitive textures of the eyeball; or from the general distension and consequent irritation of its coats, occasioned by the larger space the crystalline must of necessity occupy when divided into numerous moleculæ, than whilst remaining in its original form and integrity.

The first of the above causes of inflammation may commonly be avoided by a skilful and cautious use of my extremely delicate instrument; the second, by commencing the operation at an early period after the formation of the cataract, and *before* the lens has acquired any considerable degree of firmness; and the last, by abstaining from the too general practice of breaking up the crystalline, and allowing the comminuted portions to remain *in situ*, behind the iris.

By guarding against these several sources of irritation, and proceeding with the utmost circumspection, the process may be accomplished with the least imaginable difficulty on the part of an experienced surgeon, and with little pain in the affected organ. Accordingly, I have, in various instances, completed the several steps of the operation, without the patient being aware that I was doing more than making the necessary preparatory arrangements. The extreme indigence of some of the objects of my "Ophthalmic Institution for the Cure of Cataract," having denied them the comfort and security of conveyance in a close carriage to their habitations, were under the necessity of walking, by the help of a guide, several miles, immediately after they had undergone the operation, and, notwithstanding such exposure, generally escaped any material interruption to their recovering;—a clear demonstration of the mildness of this mode of operating. Indeed, it rarely happens that a mechanic is detained more than a few days from his employment, on account of this operation; and it is a still more uncommon event for him to be confined to his bed, or to require any medicated application to the affected eye. And as absorption, *cæteris paribus*, usually proceeds in the ratio of the *softness* of the lens, and the absence of topical irritation, the process in these cases frequently goes on with such extraordinary rapidity, that I have known many of this description, in which not a vestige of *un*absorbed cataract could be detected in 48 hours after the operation:—in some instances, (the *fluid* species) the whole had disappeared in less than half that time.

The latter result was fully exemplified in a young gentleman 19 years of age, whose intellectual faculties were scarcely of a higher order than those of an idiot. He had been blind for several years. Having succeeded in restoring his brother to sight, his highly respectable parents felt great anxiety that an attempt should, if possible, be made to afford similar comfort to this unfortunate object of their compassionate regards.

After familiarizing the patient to my voice, and to the position and manner in which it was intended the operation should be performed, I availed myself of a favourable opportunity of realizing my project; and the lens being of a soft texture, the whole process was finished before he was aware of my design. Within the space of 24 hours, the whole ambit of the pupil became perfectly clear, when, with inexpressible delight, he began to discover the use of his tongue, his spirits reviving with his restored perception of the objects around him. The same means were then applied to the other eye, the sight of which he regained in an equally short space of time, and without a single untoward symptom, or blush even of redness in the conjunctiva, except immediately around the spot where the needle was introduced. A fact, connected with this case, ought not to be passed over in silence. I allude to the circumstance of the return of his visual faculties having been speedily followed by the development of his mental powers, which, whilst in a state of darkness, appeared to be in a completely torpid condition. As soon as he became practically acquainted with the external and visible properties of tangible substances, he manifested a great desire to be instructed in their uses, and gradually attained such a share of general information, as to be no longer a burthen to himself and family.

But against the proposal to operate upon one eye, whilst the other is only slightly affected—to say nothing of the prejudice which it must have to encounter—it may be argued with great plausibility, that the rays of light will undergo very different degrees of refraction, in passing through the whole of the transparent humours, compared with what they must necessarily experience in traversing only the aqueous and vitreous, after the removal of the crystalline. Under this change in the focal powers of the respective eyes, according to the laws of optics, double or indistinct vision cannot fail to ensue. Such, however, is the correcting and adjusting energy of the *living* eye, that, contrary to what theory would inculcate, experience proves, that this inconvenience, even after extraction, is never great or permanent. In the cases under consideration, the change from a state of absolute blindness to the subsequent recovery of sight, is never sudden; and it is owing perhaps to the transition from imperfect to gradually restored vision, being neither abrupt nor very considerable, that the defect in question is still more trifling and transitory in its duration. But what is of great moment to be understood, the patient uniformly assured me, that the operation had effected a very perceptible improvement, both in respect to the power and sphere of his vision.

With regard to the dread which has been entertained by some highly respectable practitioners, viz. that the formation, or the progress of the disease, will be accelerated in the eye that is not at all, or scarcely, and not visibly, affected, by the sympathy which exists between it and the one operated on, is a supposition which I am fully convinced is altogether unfounded and gratuitous. It is indeed an undoubted truth, that the most intimate sympathy or concert obtains between the two eyes; so that an inflammation being excited in one, the other organ is very liable to be consequentially affected; and if a cataract be produced by extreme violence in one eye, the chance is, that, if left to itself, a similar disease will sooner or later attack the corresponding lens, although it has not, in the slightest degree, participated in the injury. In such a case, there is not any ground for ascribing the occurrence in the latter, to any latent or constitutional cause, but to the similarity of vascular action in the corresponding parts and textures; in consequence of which, the disturbed function in one, so long as it continues, is likely to introduce a similar derangement in the other organ. So far, therefore, is this representation of the fact from countenancing the too prevalent notion alluded to above, that it serves to establish, on the contrary, a directly opposite doctrine. For if there is any risk of morbid action being transferred, or communicated by sympathy, from one organ to the other, that danger must surely be obviated, rather than increased, by the removal of the presumed exciting cause, namely, the opaque lens; by which means, the concatenation of sympathetic movements being from that moment dissevered, the crystalline will probably either remain quiescent, or else resume its healthy action. Accordingly, I am warranted by extensive experience, which the observation of eminent practitioners tends to confirm, in stating, that by operating, at an early period after its formation, upon the cataract in one eye, the nascent disease in the other has, in some instances, been suspended; whilst, in several, the organ in which the opacity had evidently made some progress, so perfectly regained its former transparency and healthy economy, as to supersede the necessity of an operation upon it.

Hence it appears, that the practice of postponing the operation for cataract upon one eye, until the same disease shall have invaded and extinguished the sight of the other, is founded upon a narrow and erroneous view of the subject; and though it may indeed fall in with the prejudiced feelings of the patient, it has a direct tendency to entail the very danger he would avoid; at the same time that it is apt to involve him in greater and more serious inconveniences, whilst it compromises present and substantial benefits.

The case of a distinguished nobleman, on whom I operated last year for lenticular cataract, affords such a satisfactory illustration of the doctrines advanced in the foregoing pages, that I shall take the liberty of briefly adverting to it in this place.

The disease had been gradually forming for many months; but the opacity had not made such progress as to deprive the eyes of an useful degree of vision. The annoyance principally complained of, in addition to the perception of a constant mist, was a sense of confusion and indistinctness in the sight, which occasioned the patient frequently to mistake persons and distances.

On account of his advanced age, (perhaps 75), and his ability to discharge, for the most part, those ordinary duties of life which do not require very accurate vision, the performance of an operation was generally discouraged. It was not without due and sufficient deliberation, that I ventured to offer different advice; my reasons for which, in addition to the foregoing, were, that extensive observation had convinced me that old age, though it may retard, does not prevent, as many have supposed, the process of absorption going on *perfectly;* and that the risk arising from inflammation is not increased under these circumstances.

The patient was ultimately swayed by my arguments, seconded by the concurrent opinion of an eminent surgeon; and came to the resolution of submitting to the operation, which was accordingly performed on the right eye, without the occurrence of the slightest unfavourable symptom. In order to prevent irritation, I purposely acted only on the anterior capsule, the lacerated and detached portions of which became absorbed in the course of the following day, leaving the central part of the cataract to be the subject, if required, of a future operation, to which the patient felt not the smallest repugnance. The pain and inconvenience sustained from the operation, were of the most trifling description; but as the season was far advanced, a consideration of the general health, as well as the age of my noble patient, induced me to acquiesce in his wish to retire for a while to one of his country seats, from whence I regularly received the most satisfactory reports.

During his abode in the country, such was the improvement in his vision, that his Lordship soon began to resume the active sports of the field; and was enabled to read by candle-light small print, of which, before the operation, he could scarcely distinguish a letter, and to participate in all the pleasures of society.

This gratifying alteration in his sight, the possibility of which had been dwelled upon as one argument amongst others for my recommending the operation, rendered its repetition unnecessary. Although a thin film of the cataract now only remains unabsorbed, which, if it does not disappear, can at any time be easily removed, by the momentary introduction and slightest touch of the needle, the powers of the other eye are now so much strengthened and improved, as to leave my patient, at his advanced period of life, perfectly satisfied with the vision he now enjoys. He has, besides, this consolation and resource, that, should his present sight hereafter fail him, a very simple remedy is at hand, by the adoption of which, he can regain the suspended function of the organ operated on.

In conclusion:—From what has been stated, we may, I presume, be allowed to draw the following inferences.

*First*, That the mental distress and inconvenience inseparable from waiting for an indefinite period, that an opportunity may be given for the lens to become ripe, or in a state fit for the common operations of couching or extraction, (a change which, when it does occur, is sometimes exceedingly tardy, and cannot with certainty be anticipated), is wholly superseded by the plan proposed.

*Secondly*, That this mode of operating, if had recourse to as soon as convenient after the formation of the cataract, is not only applicable to every variety and complexion of the disease, but is likewise attended with less than the usual pain to the patient, and less difficulty to the surgeon; at the same time, that the chance of inflammation is proportionably diminished.

*Thirdly*, That there is less probability of the necessity of several repetitions of the operation, in consequence of the absorptive process going on with greater rapidity where the lens is soft; while there is also less risk of supervening irritation, than after it has acquired a firmer consistence.

*Fourthly*, That the needle, under these circumstances, can be employed to break up not only the yielding texture of the slightly opaque crystalline, but also that of its capsule, with the least possible injury to the eye.

*Fifthly*, That in consequence of the above advantages, and from the very nature of the process, vision is rendered more perfect than after the usual modes of relief; at the same time that the contingency of a secondary cataract is effectually prevented.

*Sixthly*, That should not the incipient cataract in the less affected eye obtain a *spontaneous* cure, the restoration of vision in the eye operated on may be fairly reckoned upon, before the opacity in the former has made such progress as materially to interfere with the function of the organ.

*Seventhly*, That by this method of procedure, the patient is not only guarded against the occurrence of blindness, instead of waiting with anxiety and dreaded anticipation for its arrival, by means which, at the same time that they are nearly destitute of pain and hazard, have a direct tendency to secure to the organ the greatest degree of perfection of which it is susceptible.

*Lastly*, That the plan of treatment recommended, whilst it challenges all the advantages which the more ancient methods of operating seek to afford, is preferable to both, in being not only more easy of execution, and less painful and hazardous, but also in being generally and successfully applicable to every species and variety, and at the earliest period of the disease, when neither of the common processes is available.

*Margaret-Street, Cavendish-Square,*
*London, May 30th,* 1823.

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## IV.

### *On the Cause and the Effects of an Obstruction of the Blood in the Lungs.* By DAVID WILLIAMS, M. D. & M. R. C. S. L.

WHILE investigating the effects of the pressure of the atmosphere upon the lungs, on its admission into the cavities of the chest, I remarked several appearances, that militated against every hypothesis advanced, as to the cause of the unequal distribution of the blood after death. Reflecting on what I had witnessed, and thinking that I had observed a phenomenon that had escaped the attention of all the physiologists whose writings I had perused, it encouraged me to a further inquiry. The result of my inquiry has been favourable, as it will, in my opinion, unveil the mystery that envelopes the cause of the comparative vacuity of the system circulating arterial blood, *post mortem.*

Before entering into the detail of my research, it will be better to premise the nature of the appearances alluded to. In one of my examinations, after the animal had been suffocated, by making a ligature on the trachea, during the acme of inspiration, previous to removing the sternum, I noticed, after the action of the heart had ceased, that the blood still flowed into the right auricle and ventricle, and consequently into the pulmonary artery; and that the propelling agent was so powerful, as to distend the right auricle and ventricle so forcibly after the pericardium was slit open, as to make it doubtful whether they would not burst; yet, at the same time, the pulmonary veins were comparatively empty. In this instance, it was evident that the blood was obstructed in its course through the lungs, and that this obstruction was one of the principal causes of the vacuity of the circulating system of the arterial blood. From the distension of the cavities of the right side of the heart, and the gorged state of the cavae, it was apparent that no obstacle impeded the return of the blood through the capillaries from the system at large. In a mechanical point of view, the blood ought to have met with equal impediment in passing through these capillaries, as in passing through the final terminations of the pulmonary artery into the pulmonary veins.

Impressed with the comparative emptiness of the pulmonary veins, and as no visible subsidence of the lungs had taken place, I was at a loss how to assign a cause for the obstruction on a mechanical principle. It occurred to me, that it was probable that the blood (from its vital principle being exhausted in its route through the system, and from its supply of nutriment from the thoracic duct being unassimilated) could not pass from the pulmonary artery into the pulmonary veins without first being acted upon by pure atmospherical air. As such a cause seemed likely to offer a solution for every phenomenon connected with the subject, the idea was cherished, and, for further satisfaction, the following investigations were instituted on the canine species.

Before proceeding to the relation of the investigation, we shall take a survey of a few of the illustrations given, as to the cause of the vacuity of the arteries *post mortem*, and as to the cause of the cessation of the action of the heart. The explanation offered by the illustrious discoverer of the circulation of the blood, as to one of the causes of the vacuity of the arteries *post mortem*, is worthy of our particular attention. Two centuries have elapsed since his time, yet scarce another ray of light has been cast on his discovery, though various hypotheses have reared their heads for the sole purpose, as it were, of receding again into oblivion. In his reply to the objection made to his great and transcendent theory of the circulation, on account of the vacuity of the arteries *post mortem*, Dr Harvey thus expresses himself. " Vacuitas arteriarum in corporibus mortuis inde evenit, quod quando subsident (meatibus occlusis) pulmones, nec ulterius respirant, per ipsos sanguis libere non potest transire: perseverat tamen interim per temporis spatium cor in expellendo, unde et sinistra cordis auricula contractior, et ventriculus, pariterque arteriæ inanitæ et sanguinis successione non repletæ, sed vacuæ apparent: si simul cor pulsare cessaverit et pulmones respirando transitum præbere, ut in iis, qui aqua frigida submersi suffocantur, aut syncope et morte subitanea extinguuntur, pariter repletæ et arteriæ reperirentur." * I perfectly agree with Dr Harvey in attributing one of the causes of the vacuity of the arteries after death, to an obstruction of the blood in its passage through the lungs; but as to the cause of that obstruction, we differ in opinion. From the tenor of the quotation, it is evident that he imputed the obstruction to the subsidence of the lungs, at the last expiration, causing the ultimate terminations of the pulmonary artery, and of the pulmonary veins, to contract or close, so as to prevent the blood passing *freely* from the right side to the left side of the heart previous to the suspension of the action of the latter. In support of his hypothesis, he asserts, that the arteries are full of blood after death, when the heart ceases to contract, and the lungs to respire, synchronously; and adduces, as a proof, the condition of the arteries in animals that are suffocated by submersion in cold water, and also in those that are cut off by syncope and sudden death. As Dr Harvey's assertion has been questioned, that the arteries are full of blood *post mortem*, after suffocation from drowning, I beg leave to explain the matter. I must presume that Dr Harvey's animals were suffocated without being allowed to ascend to the surface of the water, and that they were submerged at the acme of inspiration, and that they were examined within an hour and a half after the action of the heart had ceased. If so, he found the aorta full of blood, yet somewhat contracted. Again, if he did not examine an animal *post mortem*, after any other mode of death, until a considerable interval after dissolution, then he had no chance of detecting the error he had fallen into. After asphyxy from hanging, if the animal is immediately examined, the aorta will be found to retain its cylindrical shape, and, of course, to be full of blood; but after asphyxy from drowning, it will retain its cylindrical form for a longer period; and the reason will presently appear. Dr Harvey only erred, then, in not qualifying his assertion, by limiting the fulness of the arteries within a certain period, after the suspension of the action of the heart. His opponents, on the other hand, have erred in not qualifying their assertion, by deferring the examination after the suspension of the action of the heart, until the tonicity of the arteries has had time to press as much of the blood as it is capable of doing into the venous system. Blood being found in the arteries of animals after death, was a very cogent argument in favour of the doctrine of circulation. Dr Harvey, thinking the heart to be the sole propulsive power of the circulation, imagined that the presence of the blood in the arteries must have been the effect of the action of that agent ceasing simultaneously with that of the lungs; consequently, that the blood remained in the arteries, from the heart discontinuing its action, before it had propelled it into the venous system. He also conceived, that when the blood was absent from the arteries, that the action of the heart continued some time after it had ceased to receive blood from the pulmonary veins; and that it was those final propulsions that expelled the blood out of the arteries. It is difficult to conceive how Dr Harvey could have ever inferred that the action of the heart, and that of the lungs, ceased synchronously in suffocation from submersion, as the former continues to beat for some time after the animal is submerged. I think it must be admitted, in this instance, that his judgment was biassed. Whether or not, he brought forward the presence, as well as the absence, of the blood in the arteries, as evidence in support of his favourite hypothesis, that the heart was the exclusive impulsive power in carrying on the circulation of the blood through the system, Dr Harvey had certainly insurmountable obstacles to oppose his discovering the cause of the obstruction of the blood in the lungs, as, in his days, the knowledge respecting the function of respiration was very limited.

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* Exercit. Anat. De mot. Cord. et Sang. Circul. 18mo. p. 157.

It is truly surprising, considering the repeated opportunities which Mr John Hunter had of observing the cessation of the action of the heart, that he never remarked the obstruction of the blood in the lungs on suspension of respiration. His words are as follows: " The diminution of the heart's motion upon stopping respiration, does not depend upon the immediate impression of improper blood on the left auricle and ventricle as a sedative, but upon the sympathetic connexion between the heart and lungs; one action ceasing, the other ceases; which sympathy is established, because, if the heart were to continue acting, it would send improper blood into the body, by which it can be supported only a little while. The right auricle and ventricle also cease acting, although not so early, and for the same reason; because, on the cessation in the lungs, the blood cannot receive any benefit in passing through them." *

Dr Goodwyn, from his experiments, draws, among other conclusions, the following. " 4*thly*, When respiration is obstructed, the florid colour (of the blood) is gradually diminished, and the contractions of the left auricle and ventricle soon cease. 5*thly*, This cessation of contraction arises from a defect of a stimulating quality in the blood itself. And hence, it follows, that the chemical quality which the blood acquires in passing through the lungs, is necessary to keep up the action of the heart." †

Bichat says, " Le mouvement du cœur peut se ralentir et cesser sous l'influence du sang noir de deux manières: 1°, Parce que, comme l'a dit Goodwyn, le ventricule gauche n'est point excité par lui a sa surface interne; 2°, Parce que, porté dans son tissu par les arteres coronaires, ce fluide empêche l'action de ses fibres, agit sur elles comme sur toutes les autres parties de l'économie, en affoiblissant leur force, leur activité. Or, Je crois que le sang noir peut, comme le rouge, porter à la surface interne du ventricule aortique, une excitation qui le force à se contracter." *

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* On the Blood, p. 54.

† On Respiration, p. 85.

Now, we shall proceed with our investigation. An animal was destroyed by securing the trachea at the acme of inspiration; † afterwards the sternum and cartilaginous ends of the ribs were removed. The blood appeared florid in the pulmonary veins, and in the coronary arteries through the pericardium. When the contractions of the left ventricle began to flag, the pulmonary veins became less and less distended, the blood changing from the florid to a darker and darker colour, as the current diminished. At the last contraction the veins flattened, and the left ventricle felt contracted. At this instant, an irregular or fluttering contraction of the muscular fibres of the right ventricle commenced, and continued for a short time, excited seemingly by the stimulus of distension, from the accumulation of blood in its cavity. After the irregular muscular action had ceased, the right ventricle felt soft and distended; the left was still contracted, but not so rigid as immediately after the last systole. The pulmonary veins appeared empty; one of them was opened, when only a temporary oozing of blood followed. The pericardium was then slit open, and the right ventricle became soon enormously distended, yet no blood flowed out of the punctured vein. Another pulmonary vein was opened, followed by a similar oozing of blood. The pulmonary artery was now punctured, and instantaneously the blood gushed out and deluged the shell of the chest. The aorta still retained its cylindrical form.

An animal was killed in the same manner as the above, in the presence of Dr Traill. The blood in the pulmonary veins was observed to change its colour to a darker hue as the current lessened. Immediately after the last systole, the left ventricle felt contracted; then an irregular action of the muscular fibres of the right ventricle commenced, which lasted for some time. By mistake, one of the branches of the pulmonary artery, traversing the right lung, was divided, instead of a branch of one of the pulmonary veins, which poured out blood copiously. As soon as the mistake was detected, the bleeding was stanched by the fingers of an assistant. It is a mistake that is easily committed, unless the vessel is traced

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* Recherches Physiolog. p. 198.

† Mr Editor, I wish to remark to your readers, who are not of the medical profession, that an animal destroyed after this manner, is as quickly deprived of life as by submersion.

from its termination in the left auricle; for after the cessation of the action of the heart, the blood that remains in the veins is as dark as that in the artery. After opening the pericardium, the right auricle and ventricle became greatly distended. One of the pulmonary veins traversing the left lung was now punctured, and a small quantity only of blood oozed out. Then, the blood which had accumulated in the left auricle and ventricle was discharged, by making a free opening into the former of the two cavities. After it was discharged, no more blood flowed or oozed out of that opening, or from the puncture which was made in the vein; yet, at the same time, blood continued to be returned vigorously from the system at large, to the right cavities of the heart. After a while, the pulmonary artery was punctured, which was followed by a discharge of its contents. The windpipe was lastly divided, and the lungs instantly collapsed with considerable rapidity; until then, no visible diminution in their bulk had taken place. To satisfy ourselves that the vessel that bled so freely was a branch of the pulmonary artery, a probe was passed into it from the right ventricle. After the action of the heart had ceased, we were much astonished at the irritability of the diaphragm producing repeatedly the most perfect contraction of that muscle, so as to heave up the abdomen powerfully. It was the only muscle excited; all the others were at rest.

To learn the *post mortem* appearances after asphyxy from drowning, two animals were suffocated. During suffocation, neither of them were allowed to ascend to the surface of the water. It is necessary to remark, that when you are in the act of submerging a dog, he makes a very rapid and full inspiration, so as to fill every air-cell—his lungs may be said to be in a forced state of distension. If he is not allowed to put his nostrils above the surface of the water, he will be suffocated with his lungs nearly in that state. The action of the heart continues for a few minutes after he is submerged; before the cessation of its action, some air will be expelled; but it must be trivial, from the fulness of the chest and the abdomen after he is drowned. One of the two animals was removed out of the water in three minutes after the cessation of the action of the heart. No water was found in the bronchia, but they contained some frothy matter. Was it the presence of this frothy matter that prevented the recovery of De Haen's dogs, though submerged a few minutes only? The other dog was removed out of the water in an hour and a half; his trachea and bronchia contained water. On opening their chests, the lungs in both were observed to be more inflated than the lungs of animals after hanging; and there was more humidity between the pleura costalis, and the pleura pulmonalis, especially in the animal that was immersed for an hour and a half. Pray what was the cause of that increase of humidity? Was it the effect of the pressure of the reaction of the elasticity of the ribs condensing the vapour between the pleuræ? The lungs of a dog, after drowning, collapse very imperfectly. Dogs that are hanged in the usual manner, from the partial occlusion of the trachea, expel the air out of their lungs by their repeated efforts at respiring, and their chests became spasmodically contracted. When the animal is young, he makes a perfect wedge of his thorax, and his lungs readily collapse. For the sake of comparison, the blood in each side of the cavities of the heart of the two dogs after drowning, and of two dogs after hanging, was separately weighed; and, before their chests were opened, the trachea of each was tied. They were examined in pairs: the first pair at the interval of fifteen minutes, the other pair at the interval of an hour and a half after the cessation of the action of their hearts. Previous to removing their hearts and lungs for the purpose of weighing the blood, ligatures were applied on the blood-vessels to prevent extravasation; thus, on the *venae cavae* near the auricle, on the *vena azygos* as it enters the superior cava, on the *aorta descendens* low down in the thorax, on the *arteria innominata* and the left subclavian where they emerged out of the chest. In the two dogs, after drowning, the proportion of the blood in the left side was about one half of that of the right; and, in the two dogs, after hanging, the proportion was about one-fourth in the left to that of the right.

For illustrating the foregoing investigations, I shall briefly consider the subject under the following heads.

1*st*, The blood is obstructed in its passage through the lungs, on suspension of respiration, while its circulation through the other parts of the body continues.

2*d*, The obstruction of the blood in the lungs, on suspension of respiration, is not the effect of a mechanical cause.

3*d*, The obstruction of the blood in the lungs, on suspension of respiration, arises from a deprivation of pure atmospherical air.

4*th*, The blood which is found *post mortem* in the left auricle and ventricle, is the remnant after the last systole, and the subsequent draining of the pulmonary veins.

5*th*, The obstruction of the blood in the lungs, on suspension of respiration, is one of the principal causes of the vacuity of the system circulating arterial blood *post mortem*.

6*th*, The immediate cause of the cessation of the action of the heart, is a privation of its natural stimulus, arising from the obstruction of the blood in the lungs.

1*st*, The blood is obstructed in its passage through the lungs, on suspension of respiration, while its circulation through the other parts of the body continues.—The temporary oozing only of the blood on opening the pulmonary veins, immediately after the last systole, proved, beyond a shadow of doubt, their empty condition. That the circulation was still carried on in the other parts of the body, was as satisfactorily proved by the distension of the right ventricle, after the pericardium was slit open. That the obstruction took place in the lungs, was obvious from the discharge of blood which followed the puncture of the pulmonary artery. Dr Harvey's statement, that the blood was obstructed in the lungs on suspension of respiration, is therefore perfectly correct.

2*d*, The obstruction of the blood in the lungs, on suspension of respiration, is not occasioned by a mechanical cause.—The blood continuing to flow for a time through the lungs, after removing the sternum and cartilaginous ends of the ribs; and its suddenly stopping, without any subsidence of the lungs, while its circulation was carried on vigorously through the other parts of the body, sufficiently proved that the obstruction was not occasioned by a mechanical cause. Dr Harvey was therefore mistaken in attributing the obstruction of the blood in the lungs to the subsidence of that viscus.

3*d*, The obstruction of the blood in the lungs, on suspension of respiration, arises from the deprivation of pure atmospherical air.—Before entering on the merits of this head, it will be advantageous to make a few observations on the function of respiration, and its effect on the blood. Professor Thomson, in his section on Respiration, says—" Respiration consists in drawing a certain quantity of air into the lungs, and throwing it out again alternately. Whenever this function is suspended, even for a short time, the animal dies. The fluid respired by animals is common atmospherical air; and it has been ascertained by experiment, that no gaseous body with which we are acquainted can be substituted for it;" and " that an animal can only breathe a certain quantity of air for a limited time; after which, it becomes the most deadly poison, and produces suffocation as effectually as the most noxious gas, or a total absence of air." * On the effects of respiration on the blood, Dr Mason Good tells us—" That the most important part of the general economy of respiration, consists in the change which takes place in the blood, in consequence of its being acted upon by the inspired air. We see the blood conveyed to the lungs of a deep purple hue, faint and exhausted by being drained in a considerable degree of its vital power; or immature and unassimilated to the nature of the system it is about to support, in consequence of its being received fresh from the trunks of the lacteals. We find it returned from the lungs spirited with newness of life, perfect in its elaboration, more readily disposed to coagulate, and the dead purple hue transformed into a bright scarlet. What has the blood hereby lost? How has this wonderful change been accomplished?" *

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* System of Chemistry, Sect. Respiration.

We learn from Professor Thomson and Dr Mason Good two important facts. One, that an animal can survive only a very short time, the suspension of the function of respiration. The other, that the blood undergoes a wonderful change in consequence of its being acted upon by the pure inspired air. We have already been taught two other important facts. One, that the blood is obstructed in its passage through the lungs on suspension of respiration, while its circulation through the other parts of the body continues. The other, that the obstruction of the blood in the lungs, on suspension of respiration, is not occasioned by a mechanical cause. From these four facts, then, I conclude, that the blood cannot pass from the system of the pulmonary artery into that of the pulmonary veins, without first undergoing those unknown changes from the action of the inspired air.

4*th*, The blood, which is found *post mortem* in the left auricle and ventricle, is the remnant after the last systole, and the subsequent draining of the pulmonary veins.—As the left ventricle is unable to propel the whole of its contents, during its contraction, a portion of blood remains in it after the last systole, as well as a portion in the left auricle. After the pulmonary veins have ceased receiving blood from the pulmonary artery, and after conveying blood for the last time, in a sufficient current to excite the contraction of the left ventricle, some blood, of course, will still remain in them, and that will keep draining by degrees from their ramifications into their trunks, and thence into the left auricle and ventricle. It has already been noticed, that, within a limited time after suspension of respiration, there is more blood to be found in the cavities of the left side of the heart, and the large vessels entering into and going out of them, after suffocation from submersion, than after suffocation from hanging; and the reason of this demands an explanation. Prior to proceeding to explain the phenomenon, it is necessary to have an idea of the difference in the volume of the lungs during the two extreme states of respiration. Sir Humphry Davy concludes from his experiments, that his own lungs, after a forced expiration, still retain 41 cubic inches of air; and that, after a forced inspiration, they contain 254 cubic inches of air. From this statement it appears, that there is a material difference in the volume of the lungs, after a forced expiration, and after a forced inspiration. This, then, is pretty near the difference between the lungs of a dog after suffocation from drowning, where the occlusion of the glottis has been entire, and the lungs of one after hanging, where the occlusion of the trachea has been partial. We can easily imagine, that, when every air cell in a lung is distended with pure air, the blood has a more expanded circulation than ordinarily, from its entering into the *rete Malpighii* that ramify on innumerable remote air cells, that are ordinarily in a state of collapse, or something akin to it; consequently, that those vessels of Malpighi which ramify on those remote air-cells, must be ordinarily without any blood circulating through them; and also, that the ramifications of the pulmonary veins corresponding to them, must be ordinarily empty. Now, we can comprehend why, within a limited time after the cessation of the action of the heart, more blood is to be found in the cavities of the left side of that viscus after drowning, than after hanging. In the same ratio, then, as the lung increases in its volume, will the circulation of the blood be extended in the minuter branches of both the pulmonary artery and of the pulmonary veins; consequently, the more inflated the lungs are on suspension of respiration, the more blood will there remain in the pulmonary veins, after the last systole of the left ventricle; and the longer will the action of the *vis mortua* of the left ventricle be in propelling it into the aorta, which will account for the protraction of the propulsion of the blood from the aortic into the venous system. The distension of the pulmonary artery (which is effected by the obstruction and the tonic power of the veins), is one of the causes of the empty state of the pulmonary veins. I shall not at present explain my reason for attributing so considerable a power to the tonicity of the veins, as I intend offering at a future period (if not anticipated) a few observations on the moving powers of the circulation.

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* Study of Medicine, Physiological Proem.

*5th*, The obstruction of the blood in the lungs, on suspension of respiration, is one of the principal causes of the vacuity of the system circulating arterial blood *post mortem*.—I think that the obstruction of the blood in the lungs, on suspension of respiration, has been satisfactorily proved; if so, one of the principal causes of the vacuity after death, of the system circulating arterial blood, has been explained; and we have only one other cause to illustrate. After the arteries have ceased to receive blood from the left ventricle of the heart, they contract by their tonic power, and thereby propel nearly all the blood they contain through the capillaries into the venous system. If there was no obstruction to the passage of the blood through the lungs, on suspension of respiration, undoubtedly an imperfect circulation would be carried on through the whole body, as long as the tonic power of the blood-vessels lasted; and a very different distribution of the blood *post mortem*, from that which we are in the habit of observing, would be the result.

*6th*, The immediate cause of the cessation of the action of the heart, is a privation of its natural stimulus, arising from the obstruction of the blood in the lungs.—This admits of a few objections. The action of the heart itself may be destroyed, by mental emotion, by an injury to the nervous system, by poison, by an electric shock, or its action may be suspended from an organic affection. The heart may be deprived of its stimulus from the loss of tone in the blood-vessels themselves, as in *asphyxia idiopathica*, as related by Mr Chevalier. * Though it requires several restrictions, yet I think it will be admitted, that the action of the heart ceases in consequence of the privation of the stimulus, arising from the obstruction of the blood in the lungs; therefore, that this corollary is in the main admissible. The action of the heart continues for a while after the submersion of an animal, because the air that is pent up in his lungs contains a portion of that principle which is necessary for decarbonating the blood. As that principle becomes exhausted, the passage of the blood through the *rete Malpighii* becomes more and more impeded, and at last it is altogether obstructed. In proportion as the impediment increases, the circulation of the blood through the pulmonary veins becomes more tardy; and in proportion to the slowness of its motion, it loses its florid colour, and perhaps likewise the stimulating principle which excites the left ventricle to contract. In support of the latter remark, it is observed, that as the circulation of the blood through the pulmonary veins becomes retarded, the heart contracts weaker and weaker, as well as less and less frequently. After the last systole, a sufficient quantity of blood to fill the left ventricle is drained out of the pulmonary veins of an animal suffocated by submersion; but it does not excite the left ventricle to contract, either from its having lost the requisite stimulus, or from the gradual manner that it fills it. The purple hue of the lips and cheeks, as observed in apoplexy, does not arise from the passage of imperfectly decarbonated blood through the lungs, but from its slow movement through the system circulating arterial blood; and that hue becomes more visible as respiration becomes more difficult. This change of colour from slow motion is more rapid than any one who has not witnessed it can well imagine. Mr John Hunter says—"We must conclude that the colour of the blood is altered, either by rest or slow motion, in living parts, and even in the arteries; this circumstance takes place in the vessels as the motion of the blood decreases." * The left ventricle, after the last systole, feels contracted, and it continues for a shorter or longer period in that state; as the blood is drained into it from the pulmonary veins, it gradually loses its rigidity, and becomes soft; but, after the action of the *vis mortua* has expelled as much of the drained blood as it is capable of doing, it again becomes contracted. This last circumstance is well exemplified in *post mortem* examinations of animals that have died previous to the muscular system being debilitated by disease. I noticed it particularly in a dog and a cat that had died of a convulsive disease, which the young of each species are liable to. I examined them in twenty-four hours after death; the pericardium of the latter was perfectly transparent. If my inference (that the action of the heart ceases, in consequence of the privation of its stimulus, from its obstruction in the lungs) be admitted, then the explanations offered by Mr J. Hunter, Dr Goodwyn, and Bichat, are obviously invalidated; therefore I shall not attempt any further refutation of their hypothesis.

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* See Med. Chir. Trans. Vol. I.

We shall now examine how far the obstruction of the blood in the lungs, from a deficiency of pure atmospherical air, is adequate to explain the cause of some of the vital phenomena observed in health and disease. All physiologists agree in admitting the direct dependence of the nervous system upon that of the sanguiferous; therefore the nervous system must lose its energy, in proportion as the circulation is diminished or impeded. As the nervous influence is the stimulus which excites the voluntary muscular system into action, it follows, that the latter must be enervated in proportion to the diminution of the energy of its stimulus. We often observe prostration of strength arising from a very short continuance of anxious exertion. I allude to that exhaustion which comes on when the will directs the nervous stimulus to the action of a certain set of the voluntary muscles, at the same time checking the action of all the others. For example, two passionate lads fighting, in a few rounds (without any serious injury, or a long continuance of unusual exertion), will fairly come to a stand, breathless and exhausted, with a sense of anxiety about the præcordia. To recruit themselves, they will "set to," as it is very emphatically styled by the *fancy*, "bellows mending;" and, in a short time, the uneasiness about the heart will wear off, the strength will be recovered, and the contest will be renewed again with vigour. How are we to account for this rapid exhaustion, and equally rapid restoration of strength? Why, the muscles of respiration being semi-voluntary, are under the control of the will; when the will directs its whole attention to the action of any particular set of muscles, the function of respiration is checked, as long as the uneasy sensation, from the accumulation of blood in the pulmonary artery, can be endured. The effect of this partial stagnation of the circulation is a diminution of the nervous stimulus to excite the muscular system into action. The more intent the will is in directing the nervous stimulus to any particular set of the voluntary muscles, the less sensible will the system be to the uneasy sensation arising from the accumulation of blood in the pulmonary artery; consequently, the sooner will there be a diminution of nervous energy to stimulate the muscular system. To relieve the exhaustion of strength, and the anxiety about the region of the heart, the system demands an additional supply of pure air to unload the pulmonary artery. As this congestion is removed, the unpleasant sensations vanish; and as soon as the system is renovated with the vital stream, it is invigorated, and the individual recovers his wonted strength. This view of the subject teaches every pugilist a valuable lesson, that is, never to interrupt his breathing unnecessarily, or, in other words, not to exhaust his strength by too anxiously watching his adversary's motions. It is well known, that a passionate pugilist exhausts himself much sooner than a cool one; and the reason is, that the passionate pugilist, from his great anxiety, is less sensible to the uneasy sensation occasioned by the accumulation of blood in the pulmonary artery, therefore he interrupts his breathing for a longer period than the cool one; consequently, he exhausts himself sooner.

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* On the Blood, p. 67.

We shall next attempt to explain the cause of an occurrence which often happens when we are in the full enjoyment of our health, but which is oftener a concomitant of one of the most fatal of diseases; I allude to the rupture of the pulmonary artery. Hæmoptysis, in my opinion, is generally the effect of an accumulation of blood in the pulmonary artery, arising from a deficiency of pure atmospherical air in the lung, to decarbonate the blood immediately on its being conveyed into that viscus. The deficiency may arise from an interruption of the action of the respiratory muscles; as, from the immoderate use of the vocal organs; or, from inspiring rarefied and impure air; or, from the over-distension of the stomach, limiting the action of the diaphragm. Public speakers, singers, and performers on wind-instruments, are too well known to be the frequent victims of hæmoptysis. The enthusiastic orator, stimulated by the interest of his subject, and proud of the approbation of his audience, endeavours, by every exertion, to make the greatest impression upon his hearers; by so doing, he interrupts his respiration, and occasions a partial accumulation of blood in the pulmonary artery. If this interruption is often repeated, the pulmonary artery must become more and more dilated, as well as debilitated, and at last hæmoptysis will succeed; or, from habitual irritation, the foundation of a more insidious disease will be laid,—I mean tubercular consumption. If the last conclusion be correct, we can account for the frequency of tubercular consumption, in countries subject to sudden vicissitudes of the atmosphere. The consequence of sudden and frequent changes of temperature, must be sudden and frequent floods of blood, as it were, rushing into the lungs, especially into the lungs of those who have very delicate and highly sensible constitutions. The pulmonary arteries of open-chested persons easily accommodate themselves to those frequent torrents; as the blood, from the capacity of their lungs, is immediately exposed to the influence of the atmosphere, and undergoes the necessary change to admit it to proceed onwards without any delay. The pulmonary arteries of narrow-chested persons, on the contrary, soon feel the effects of a sudden increase in the circulating medium; for their lungs are unable to supply the increase of blood immediately with pure air, so as to enable it to proceed onwards without delay; therefore a temporary accumulation takes place in the pulmonary artery, which must irritate its extrême terminations.

To enter into the detail of every phenomenon, which, in my opinion, arises from the obstruction of the blood in the lungs, would lead me beyond the limits of an article intended for a periodical publication. If my corollary, that the blood is obstructed in the lungs from a deficiency of pure air, be correct, then I have no doubt that, from the labour of others, a rapid advancement will be made in the pathology of all the diseases of the respiratory organs. If our theory be admitted, it will probably lead, in the treatment of these diseases, to a firmer reliance on the efficacy of certain medicines of acknowledged power in regulating the circulation; and it will render most of us less susceptible of being made the dupes of charlatanism. It will, in many cases, suggest to us a valuable prophylactic; and it will procure a more ready compliance to our advice from many who are predisposed to diseases of the respiratory organs, more especially from public speakers. Most men are prone to turn a deaf ear to an advice which is to ward off what they suppose to be an imaginary evil. But, if we can convince a person that the blood stagnates in his lungs every time he interrupts his respiration, by uttering long periods, and that that interruption endangers the rupture of a blood-vessel, or that it engenders in his bosom one of the most unrelenting of diseases (tubercular consumption), surely, under such an impression, no one will be found so careless of his health and life, as not to pay some share of attention, during his professional duty, to the important function of respiration.

Now, I flatter myself, that the cause of the phenomenon that reserved the discovery of the circulation of the blood to modern times, and to the honour of our country, has been disclosed, and that no one for the future, however sceptical, will be able to urge the vacuity of the arteries after death, as an objection to the doctrine of our immortal Harvey.

How far temporary accumulations of blood in the pulmonary artery are a source of disease, I leave to the decision of time. Yet I must say, that Dr Traill's coinciding with my views on the subject, has made me not a little sanguine, that my pathological speculations are founded upon a substantial basis; and I cannot refrain acknowledging, that I am gratefully sensible of my obligations to Dr Traill for his kindness during the above inquiry, as well as at all other times.

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## V.

## *A Case illustrative of the Utility of large Doses of Opium in cutting short a Paroxysm of Acute Mania, with Remarks.*

By John Allan Esq., F. R. C. S.

Early on Thursday morning, the 17th of October, 1822, I was called to see R—— B——, who had fallen down in a fit. I found him sitting on the side of a bed, talking incoherently, and insisting upon the supposed necessity of his proceeding to a public office where he was usually employed in a laborious occupation, but whence he had been sent home the preceding day on account of the alienation of his mind. He had subsequently been cupped at the Dispensary in Gerard Street, and ordered some medicines, which, however, he had not taken. He had been many years in the habit of drinking freely of malt liquor and gin. His appetite for food was very much impaired and capricious, as he had relished none but high-seasoned dishes, and took those but seldom, and in small quantities.

He had for many years suffered habitually from *prolapsus ani* and hæmorrhoidal discharges. About seven years before I saw him, he had undergone two operations for the removal of hæmorrhoidal tumours. Since that time, he had been less subject to hæmorrhage from the anus; but had been frequently troubled with giddiness and headach, and occasionally with severe tremors in his limbs. These symptoms had occasionally been more or less relieved by the discharges of blood from the anus. He was fifty years of age, of a tall and athletic form, and his eyes were dark. His pulse was full and firm. His hands and all his limbs were in tremulous motion, and he was incessantly talking. When desired to show his tongue, he thrust it in a hurried manner a great way out of his mouth. It was covered with a dark brown crust.

I opened a vein in his arm, and drew fully two pounds of blood in a full stream, and then ordered five grains of calomel, with ten grains of the compound colocynth pill, to be taken immediately, and a dose of infusion of senna and sulphate of magnesia, to be taken every three hours.

He was well purged in the course of the day; but, nevertheless, had another epileptic fit in the afternoon. In the evening twelve leeches were applied to his forehead. He passed a very restless night, and was only prevented by force from getting out at the window. He wished to procure malt liquor and spirits, which of course were withheld. In the morning, a considerable part of the rectum had protruded beyond the anus, but was replaced without difficulty. He felt pain in the epigastric and umbilical regions. He complained bitterly of the persons who had watched to prevent his doing mischief to himself, alleging, that an Englishman's house was his castle, but that he was imprisoned like a felon in his, and denied even the necessaries of life.

I drew twenty-eight ounces of blood from his arm; and, as he vehemently demanded food and drink which were improper, I ordered a grain and a half of tartrite of antimony to be given in a draught every half hour, to the extent of four doses. This produced no nausea, nor was the violence of his conduct diminished after the bleeding.

His family now supposing him to be incurably insane, proposed to remove him to a private madhouse. From this I dissuaded them, and, endeavouring to convince them of the importance of getting all that could be done for him by medicine, attempted with the least possible delay, I recommended their getting him into Bethlehem Hospital. Upon inquiry, however, it was found that his case could not be taken into consideration for at least four or five days, and that possibly a day or two more might elapse before he could be removed to the hospital, supposing he should have been declared a fit subject for admission. The violence of the symptoms, and the little effect produced by the measures already mentioned, gave reason to fear that the disease, if left unchecked, might prove fatal before these forms could be gone through, or at least might pass into a state far less favourable to recovery.

In these circumstances, I felt it incumbent on me to proceed with the treatment I had commenced. His head was accordingly shaved, and thirty-six leeches were applied at once to the scalp. Two grains of calomel, with the same quantity of extract of rhubarb, were directed to be taken every four hours, to the extent of four doses.

On the morning of the 19th, he had become so outrageous, that I found it necessary to have his arms confined with a strait-waistcoat. His bowels had been purged of copious, black, fetid and fluid stools. A draught containing two drachms of sulphate of magnesia, and half a grain of tartrite of antimony, was directed to be repeated every four hours. His pulse still continuing full and strong, I determined to take away such a quantity of blood at once as should make a decided impression on the system. After the loss of forty ounces, he became pale and slightly faint, and was bathed in a profuse universal perspiration. After this he was quiet for some time; but towards evening, he had become as violent and unmanageable as ever, although his pulse, instead of being strong and full, was now quick and feeble. In his struggles to release himself, a large quantity of blood had at different times during the day been lost from the wound in his arm. In the evening he had a most violent shivering fit, which lasted half an hour, and shook the whole room.

After this period, vigorous coercion, which had been but occasionally necessary before, became constantly indispensable, to prevent him from doing mischief to himself and others. The strait-waistcoat, which had been removed when he was bled, was therefore reapplied, and I directed two grains of opium, and ten grains of extract of hyoscyamus to be given at once, and to be repeated every four hours, till sleep or a state of quietude should be produced. A blister was likewise applied to the nape of his neck, and cloths moistened with cold water to his head.

Next morning (October 20th), I found that he had passed a more noisy and restless night than ever. He had sweated most profusely; but the narcotics had apparently produced no effect, though he had taken four doses. His thirst was very great, and his tongue very much furred.

In the evening I was informed, that, soon after my last visit, he had become rather quiet, and that no more of the narcotic pills had been given. He now lay apparently powerless, in a supine posture, covered with a constant profuse perspiration. His mouth was open, the lower jaw being quite relaxed, and he recognised no person whatever. His urine and stools passed unconsciously.

His friends now gave up every idea of the possibility of his surviving the ensuing night; and when I urged the propriety of applying a large blister to the scalp, they only consented, on the assurance that he was not in a state to feel pain from it, and that it was still possible for him to recover.

The next morning (October 21st), his features had resumed their natural aspect and expression; his skin was cool and moist, and, though his ideas were not perfectly collected, he recognised every person, and gave distinct answers as to his sensations. His tongue being still greatly furred, I directed two grains of colomel, with five grains of rhubarb, to be given every six hours, to the extent of four doses.

In the afternoon I found that he had passed the day in tranquillity, and had had one arm at liberty. The blister on the scalp caused a very profuse discharge.

Next morning (October 22d), I found him in the entire possession of his mental faculties, and perfectly reasonable in his conduct. He stated that he knew nothing of what had passed since he had been taken ill, and complained of pains all over his limbs, as if he had been severely beaten. His skin was moist; his tongue still much furred, and his thirst urgent. His stools were less watery, though still of a very dark colour. His mouth had begun to be affected by the calomel. His pulse was of moderate strength and frequency. The blisters on his head and neck discharged very copiously. As he expressed a desire for some food, milk, beef-tea and toast, were allowed him.

After this period, his recovery was rapid and regularly progressive. He took mild bitters and gentle aperients, with occasional doses of mercurial pill, and he was allowed nutritious and plain diet, which, to the surprise of all that knew his former habits, he ate and relished. About six weeks after the commencement of this attack, he resumed his usual labour in the enjoyment of perfect health, bodily as well as mental.

*Remarks.*—So many treatises on mental derangement continually issue from the press on the Continent, as well as in this country, that it may appear vain to have presented to notice the details of a single case, whatever may be its peculiarities. It therefore seems requisite to state the grounds on which the foregoing history is supposed to deserve attention.

In the first place, it is calculated to show, that much advantage may be derived from the early application of energetic means in insanity, even under the most unpromising circumstances, and may thus tend to obviate the bad consequences of the prevailing notion, that the healing art possesses no means of relieving diseases of the mind; a notion likely to discourage inexperienced professional men from persevering in the application of those remedies which, a careful examination of individual cases, with the hope of accomplishing a cure, might suggest. I have observed the relations of insane persons generally impressed with this idea, and, in consequence, too ready to conclude, that their chief duty consisted in providing for the mere maintenance of the unfortunate patients, and too prone to relinquish every hope of seeing them restored to health.

Another error is, that success cannot be expected in the treatment of insanity, except in an hospital or establishment devoted to the reception of the insane, or from the attendance of practitioners exclusively habituated to the treatment of this disease. People are consequently too apt, as soon as unequivocal symptoms of insanity have appeared, to consign the patient to a madhouse; and in seeking to accomplish this object, to neglect procuring that early assistance, without which, especially in acute cases, a favourable issue can scarcely be secured in any situation.

Should the present account induce any practitioner, instead of waiting for an opportunity of sending his patient to an asylum, to seize the precious moment for successfully combating the disease, by exerting his own ingenuity in the immediate application of the treatment that seems most appropriate, he may have the satisfaction of preserving the life or faculties of a fellow-creature; and the trouble of recording the present case will be amply rewarded.

But this is not the only point of view in which this case is deemed deserving of publicity. The treatment of it was not conducted in strict conformity to the rules laid down by systematic writers on this subject. Cases occasionally occur, in which liberal depletion, combined with suitable medicine and regimen, will suffice effectually to put a period to a fit of insanity; but every one who is conversant with the disease must be aware, that evacuations, however ample, are often unavailing in destroying the morbid hallucinations. In such circumstances, I contend, that in opium, if given in sufficient doses, we possess a powerful, and in recent cases, a most invaluable remedy. The exhibition of large doses of opium, however, in insanity, is by no means a common practice; and, indeed, it must be acknowledged, that the use of this medicine in this disease has been almost universally condemned.

Dr Hallaran, in his Treatise on Insanity, acknowledges that there are cases in which opium has subdued the first approaches of a paroxysm, and even cut it short where it had already assumed a positive character. He admits that "it may still be a question, whether, in the generality of instances, a full and timely dose of opium, by interrupting the quick succession of morbid ideas, where a long absence of natural sleep had been an aggravation, will not, in the event of its operation, so fully dissever their catenation, as to make way for the gradual return of rational perceptions." He goes on to state a case, in which sleep had been a stranger for forty-eight successive hours, where he had no doubt the disease would have been confirmed, but for the intervention of sleep, approaching to apoplexy, procured by the exhibition, at three short intervals, of two hundred and forty drops of laudanum. Dr H. says that this sleep, which continued twenty-four hours, was evidently the means of effecting an entire and lasting restoration of the mental faculty.

But, though acquainted with the powers of opium in insanity, Dr H. entirely renounced it in his practice. His peculiar views led him to entertain objections to the practice of blood-letting, and especially of venesection in this disease; and as, without blood-letting premised, opium might seldom be safe, it is not to be wondered at that he should give the preference to the circular swing and digitalis, as sedatives or soporifics.

I apprehend, that the general opinion against the use of opium in insanity must, in like manner, have been deduced from theory rather than from observation, inasmuch as I am not acquainted with any practical experiments on which it is founded; but had I not seen opium administered with the happiest effect in another case, under circumstances somewhat similar to those of my patient, the weight of opinions against its use, so well entitled to respect, would probably have over-balanced in my mind, the very obvious indications for it, which arose in the present instance. It is scarcely necessary to say, that this indication resulted from the continuance of violent nervous excitement and total want of sleep, after the depletion had been carried as far as seemed consistent with safety. The other case here alluded to was one of cerebral irritation, which suddenly came on in consequence of metastasis from the liver. After liberal evacuations of blood, the most alarming nervous excitement was completely subdued, and sound sleep induced by very large and repeated doses of the *liquor opii sedativus* of Battley. Although the state of this patient, reduced by a previous protracted illness, and the necessary treatment, justly occasioned the most serious apprehensions of a speedily fatal result, the cure was perfect; the patient recovering without the slightest renewal of the morbid hallucinations, or even of the original affection of the liver. This occured a short time before the illness of my patient, in the practice of Dr Davis, whose intimate knowledge of this subject is sufficiently attested by the learned disquisition prefixed to his translation of Pinel's work on Insanity; and I felt myself justified, by his example, in deviating from the ordinary practice, in the alarming circumstances of the case now recorded.

It is for the profession to judge how far the effect of the opium is to be considered an indispensable link in the chain of circumstances which led to the successful result, and how far the practice may deserve further trials. Objections will naturally suggest themselves against a practice which has heretofore been abandoned or proscribed, almost with common consent, and especially against drawing general inferences from individual cases. It may be remarked, however, that there is danger of perpetuating error in the science of medicine, if practical suggestions are to be rejected, because they may not be consistent with doctrines generally taught and admitted. Not many years ago, blood-letting in continued fever was an innovation upon the systems almost universally taught in the most celebrated schools of this country, according to which, general bleeding was considered as seldom admissible, and its repetition as hardly ever justifiable in any case of continued fever. Some professors used even to account for the impunity with which that practice was employed by the sagacious Sydenham, by supposing the human constitution to have undergone a change since his time, in consequence of which it had become less fit to bear evacuations. Yet blood-letting in fever, to a much greater extent than Sydenham ever employed it, is now established, by ample experience, to be both safe and salutary.

When this revolution of opinion and practice in fever is recollected, it is to be hoped that the existing doctrines against the use of opium in insanity, may not deter those who have opportunities, from instituting an experimental inquiry under what circumstances or limitations, after sanguineous and other evacuations premised, that powerful drug may be administered in such overwhelming doses, as to quiet the excitement of a paroxysm of mania, by substituting profound sleep or temporary stupor, for the incessant agitation and exhausting struggles, which no evacuations can control.

With respect to the hyoscyamus given in conjunction with the opium in the present instance, I do not suppose that any of the sedative effect ought to be attributed to it. At least, I have often found hyoscyamus inert when administered alone, and I cannot aver that I have ever known it exert any considerable power.

*Leicester Square, London,*
10*th July*, 1823.

After having written the foregoing observations, Dr Davis favoured me with another example of the highly beneficial effects of opium in full doses, in a recent case of mania from metastasis. The patient had been the subject of diseased liver, and was under treatment for that complaint, when, after a sleepless night, he was suddenly seized with violent spasmodic contractions of the flexor muscles of the upper extremities, speedily followed by relaxations. After this seizure, he was soon found to be perfectly incoherent in his ideas. Under these circumstances, Dr Davis, upon being called, ordered a large evacuation of blood by cupping, from behind the ears, which induced a state of faintness, and greatly moderated the hallucinations. Dr D. then prescribed fifty drops of Battley's *liquor opii sedativus* to be taken forthwith, and fifteen drops to be repeated every third hour, until he slept. In the course of that night he slept five hours, and awoke perfectly rational. The opium was continued, however, during the next day in smaller doses. The succeeding night he slept nine hours, and was now considered perfectly free from any affection of the head.

This patient had, two years previously, been the subject of insanity for some time, during which he had repeatedly attempted self-destruction. He still continues under treatment for the affection of his liver.

21*st July*, 1823.

## VI.

### *Case of Hydrothorax, successfully treated by Blood-letting, with Observations on the Nature and Causes of the Disease.*

By JAMES BRAID, Corresponding Member of the Wernerian Society, Surgeon at Leadhills.

On the 1st of January 1823, I was called, for the first time, to visit Widow Dalwoody, ætat. 50, of rather slender make, spare habit, and middle height. Catamenia disappeared four years ago, since which period she had enjoyed pretty good health until lately, when she became affected with a dry cough; dyspnœa increased by assuming the recumbent posture; oppression within the chest, amounting to dull pain, on taking a full inspiration; and also a scarcity of urine. These symptoms were followed by œdema of the inferior extremities, which gradually extended over the whole body, with an increase of the dyspnœa, cough, and oppression in the chest, up to the present day, when she first called for medical advice. The symptoms now noted are—

Œdematous swelling, extending over the whole body; great oppression in the chest, with dyspnœa, so much aggravated by assuming the recumbent posture, that it cannot be endured for any length of time, and the only tolerable position is leaning on her knees and elbows; no swelling of the abdomen, further than that produced by the general anasarca, nor any other marks of ascites present; frequent cough with watery sputa; the sensation of a fluid evidently fluctuating in the chest, on the posture of the body being changed; the countenance remarkably œdematous and pallid; thirst; scarcity of urine, which does not coagulate by heat; tongue a little furred; bowels regular; pulse 90, small and hard; sleep very much disturbed. Habeat ℈i. nit. potassæ h. s. et ℥iss. sul. mag. c. m.

January 2d.—Salts are operating well; in other respects much the same as yesterday.

3d.—Salts have procured a number of watery stools; but no increase of urine, or ease in breathing, or alteration of pulse, or relief in any respect. I therefore now resolved to try the effect of blood-letting; and, as it has ever been my practice not to calculate on the quantity taken, but on the sensible effects it produces on the action of the heart and arteries (the propriety of which is so well advocated by Dr Graham, in a late

Number of your Journal, in a paper written on the same disease I now treat of), I determined to make a decided impression on the circulation, whatever quantity might be required to produce it. Thirty-six ounces were taken, which brought on syncope. She felt considerably relieved by the time twenty-four ounces. had flowed; and still more so till syncope came on. Hab. ℥i. sul. mag. p. hora.

4th.—Blood taken yesterday sizy; salts have operated powerfully; pulse 90, but softer than before the bleeding; dyspnœa, cough, and tightening over the chest, considerably relieved; urine increased in quantity very considerably. Cap. ʒi. supertart. potassæ om. bihor.

5th.—Urine increased to 64 oz. during the last 28 hours; not coagulated by heat. Has taken eight doses of the cream of tartar; bowels moved frequently; œdema of the face and superior extremities somewhat diminished; breathing and cough considerably relieved; tongue still furred; pulse 90, and again becoming hard. I therefore determined again to abstract blood, and 36 ounces flowed, when syncope came on. Dyspnœa was much relieved, as at former bleeding, whilst the blood was yet flowing. Cont. supertart. pot. ut heri.

6th.—Feels much better; dyspnœa and cough greatly relieved, she can now lie on the right side, with the head low. Œdema considerably diminished; a very slight degree of fluctuation perceptible in the abdomen, as if it contained a very small quantity of water; blood taken yesterday showed very little of the buffy coat, and had a large proportion of serum, more than two-thirds in bulk of the whole; pulse 88, and softer; urine 66 ounces during the last 20 hours; does not coagulate by heat; no stool since I last saw her; has not been regular in taking the doses of cream of tartar; but is now ordered to take ʒiss. every two hours, till I see her again.

7th.—Feels still easier, and can lie on either side, or on the back, without feeling much inconvenience; but prefers lying on the right side. Is not now sensible of any fluctuation in the chest on change of position, and cough almost gone; abdominal fluctuation not perceptible to-day; no thirst, and has drank none since yesterday, excepting about an ounce of water-gruel with each dose of the cream of tartar. Has had three stools, and passed 72 ounces of urine last 24 hours. Œdema greatly diminished; tongue a little white, but not furred; pulse 80, and a little sharp; complains of pain in the left side of the head, which came on yesterday afternoon; appetite rather better. Cap. statim ʒi. pulv. jalapæ comp. et ʒi. supertart. pot. om. bihor.

8th.—Feels still better; œdema nearly gone; dyspnœa and cough gone; two copious stools from the medicine; pulse 80, and soft; tongue a little white, but not furred; no thirst. Has taken only 8 ounces of water with the doses of cream of tartar. Eight ounces of water-gruel twice in the course of the day, and three cupfuls of tea with a little bread, constituted the whole ingesta during the last 24 hours. Besides the two copious stools, she passed 72 ounces of urine. Dull headach continues. Contr. doses supertart. potassæ.

9th.—Feels still better. Œdema quite gone; dyspnœa and cough also entirely gone. Can lie in any position with perfect ease; pulse 86, when sitting out of bed; appetite keen; feels some uneasiness about the precordia, which I suspect arises from her having eaten too heartily at breakfast this morning. Two watery stools. Excepting something additional at breakfast this morning, ingesta the same as day before; urine 74 ounces; headach nearly gone. Cap. ʒiss. supertart. pot. om. 2 h.

10th—Continues to improve. Appetite good; no thirst; dyspnœa entirely gone; coughs very little; pulse 86, but neither full nor hard; heat natural; no stool since yesterday; urine same in quantity as last reported, exceeding considerably the whole ingesta in the same time; headach and oppression about the stomach gone. Having sat out of bed the whole of yesterday, a little fulness of the ankles appeared in the evening, which is gone to-day. Cap. ℥iss. sul. mag. statim, et contr. doses supertart. potassæ.

11th.—Salts operated powerfully; stools somewhat brown-coloured and watery; has not been careful in collecting the urine, but feels confident she has passed as much as on any preceding day. Again complains of pain in the left side of the head; no thirst; appetite not so keen to-day; tongue white, but not furred; no fulness about the ankles last night; dyspnœa quite gone; coughs so seldom and so easily as scarcely to deserve notice. Contr. doses supertart. potassæ.

12th.—Has no complaint but weakness; pulse 84; respirations 23 per minute; tongue natural; appetite better; has had one natural stool, and passed 72 ounces of urine in the last 24 hours, being considerably more than the whole ingesta in the same length of time. ℞ Pulv. rad. Colombæ ʒii. Pulv. radicis scillæ maritimæ gr. xxiv. Tere et divide in pulv. xii. Cap. i. mane et vespere, et ʒi. supertart. potassæ bis in die.

14th.—Free from all complaints; pulse 72; respiration free and natural; appetite improving; bowels regular; urine passed daily about 3½ English pints, which is fully as much as all the liquids taken.

17th.—Complains of uneasiness about the stomach; dull headach; impaired appetite; urine diminished in quantity, and, on cooling, turns milky; bowels costive. Hab. statim ℥iss. sulph. mag.

18th.—Salts operated well; feels free from all those complaints enumerated yesterday; urine increased in quantity, and does not turn turbid on cooling. Cont. pulv. stom.

From this time she required no other medicines, and in a very short period regained as good health as she has had for years; and at present, 2d May, she still continues free from all complaints.

From the favourable accounts I had read, as well as seen verified in my own practice, of the success attending the treatment by blood-letting, of dropsy supervening on scarlatina; and after the pathological observations on dropsy, given by Dr Blackall and Dr Parry, the transition from one species of the disease to another was natural and easy. I accordingly tried the effects of blood-letting in hydrothorax for the first time two years ago, in two cases;—the one case far advanced and of long continuance, the other of shorter duration, and not so far advanced; the latter case recovered, and the patient is still in good health; the former died, after dragging out a miserable existence, as is usual in such cases, not being able to have his head lower than a half-sitting posture for some weeks. He was rather pusillanimous, and thus prevented the *blood-letting* from being pushed so far as otherwise I might have done; but every other remedy recommended for the disease was fairly tried, without any decided or permanent advantage.

The advantage I saw to result from the blood-letting in the other case, however, and the decided benefit Dr Graham's patient experienced from copious bleeding, seemed fully to warrant the propriety of adopting it in Widow Dalwoody's case, which was indeed so urgent, that I feel confident that, under the common mode of treating the complaint, she could have survived but a very short time. Although the urine did not coagulate by heat, showing the presence of albumen, which seems to be held by most as the only criterion for those cases requiring the use of the lancet, I could not see how this circumstance alone should be decisive, and therefore resolved to give it a trial, and the event, I trust, may induce others to try the same remedy in similar cases; but I am convinced, that success is only to be expected from being decided and prompt, in regard to the *extent* to which the bleeding is carried. Although the absolute quantity of blood taken was not so great as is known to have been taken, in the same length of time, from patients labouring under some other diseases, yet, when the age, stature, and habit of body of the patient are considered, it will then appear, that the quantity required to produce the effects wanted was very considerable; and the immediate relief produced in the pectoral complaints, whilst the blood continued to flow, and the great increase in the quantity of urine which immediately followed the bleeding, most decidedly prove the good effects resulting from it. The liquid stools, of course, assisted very considerably in draining the system of the effused fluid; but *these* are also procured much more readily after venesection than before.

I am also aware, that the cream of tartar ranks high as a *diuretic*; but at the same time, I am not aware of a case of the kind on record, where a cure was accomplished by it alone, or in the same length of time, by any means whatever; and this case was too unequivocally marked to have admitted of any mistake in the diagnosis. And further, although little cream of tartar was taken the day after the second bleeding, the urine increased by about a third part.

The peculiar circumstances which seem to operate as causes of hydrothorax, are such as to rank it among diseases of increased vascular action, viz. those most liable to the disease, are such as suffer from visceral obstructions, who have been intemperate, particularly in regard to the use of ardent spirits; such as have laboured under asthma; such as have had frequent acute inflammatory affections of the breast, and which may have left a teasing cough for after life; and above all, such as have been exposed to breathe noxious or confined air. The operation of this *last* cause has been the mean of sending me more patients with this disease, than all the others together: for the miners must sometimes work in places where there is so little circulation of air, that their candles can scarcely burn; and I have almost invariably observed, that a continuance for any considerable length of time, (although in such situations they may only work three or four hours daily), brings on pneumonia in the young and plethoric, and hydrothorax in the old, if rather of spare habit of body; and if there should happen to be any healthy middle-aged men working as hand-neighbours to these others, although of course both must breath the same impure air, these middle-aged men will remain free from any *urgent* complaint, till both their young and their aged neighbours are laid aside, perhaps never more to return. I became so fully convinced of this fact, as long ago to have induced me to recommend to the agents and overseers of this place, to avoid, as much as possible, putting either very young or very old men into such situations.

Now, it would evidently appear, that the very same cause which produces pneumonia, or acute inflammation of the breast, in the young and plethoric, produces hydrothorax in the aged and infirm, who have thus become less susceptible of acute disease; and I therefore think it but fair to conclude, that increased vascular action is the immediate cause of both, and that they only differ in degree and activity; and consequently, that the same mode of treatment, modified to the particular case, should be proper for both. The event, so far as I have tried this method, accords with this conclusion; and I trust that some others in the profession may bestow some attention to this matter, and throw some further light on the subject. The only *theory* which I could form on the subject was, that in asthma, frequent coughing, or breathing impure air, the chest, being overdistended, not only runs a risk of rupturing some of the capillary vessels, but also produces an increased flow of blood in those parts, which, in the old and weak, will only produce an effusion of serum; but in the young, will excite more urgent symptoms, by inducing acute inflammation. And thus I was disposed to apply the same depleting plan to both cases, only modified, of course, to meet the strength and constitution of the patient. I avoided giving a variety of diuretics, or using blisters, &c. that I might be the better able to judge of the real benefit derived from the bleeding in the present case.

*Leadhills, 2d May*, 1823.

## VII.

### *Cases of Ruptured Perinæum treated successfully by Suture.*

By W. Bayer, Licentiate of the Royal College of Surgeons, Edinburgh.

I OBSERVED, some time ago, in the London Medical and Physical Journal, No. 259, a communication from Mr Alcock respecting laceration of the perinæum; and a case is given, which he treated successfully by ligature. The Editors of that Journal seem to attach considerable importance to this operation, and regard it, if generally successful, as a great improvement in modern surgery. Now, some years ago I had successfully operated for lacerated perinæum; but it appeared to me such a simple and obvious method of managing the case, that I not think it worthy of public notice. On making inquiry, however, of several surgeons of my acquaintance, I found that none of them had ever employed sutures in such cases, nor ever thought of them. I pretend not, however, to originality: for Burns says, in his Principles of Midwifery, that sutures have been resorted to, and ought always to be employed, when the cure cannot be accomplished without them. The greatest difficulty is, that one feels a delicacy in proposing the operation to our patients.

The first case of lacerated perinæum I met with, was in December 1817, in a first labour. The lady was rather elderly; the labour was tedious; there was considerable rigidity of the *os uteri;* the external parts were also rigid and unyielding. The laceration took place at the moment the head was passing the vulva. The lady threw herself from me with a sudden jerk, so that I was unable to give the proper protection to the perinæum. The rent extended as far as the anus, yet the recto-vaginal septum was not torn. A physician-accoucheur, a gentleman of eminence in his profession, who occasionally attended the family, happened to call at this time. He gave it as his opinion, that the conjoint effect of rest, position, frequent ablutions, and keeping the bowels open, ought to be tried. This plan was adopted. I had not an opportunity to attend to the progress of the case; but I have reason to believe that she did not experience much inconvenience from the accident. She had no more children, but died of pulmonary consumption five years after.

I was not quite satisfied with the mode of treating this case; and had secretly resolved, when an opportunity offered, to have recourse to suture. It was not long before another case occurred. In the month of February 1818, I had occasion to attend a young person in her first confinement. The labour was rather tedious; the pains strong and forcing; the *os internum* and *externum*, as before, rigid and unyielding. From the extreme restlessness of the patient, I was prevented from sufficiently guarding the perinæum at the time of birth; and, in consequence, laceration took place. The rent extended in an oblique direction close by the side of, and rather farther than, the anus; the rectum was not implicated. At first, I did not mention the accident; but at next visit I stated what had happened, pointed out the inconveniences which would probably result from neglecting to adopt proper measures, and explained the method whereby I proposed to prevent these inconveniences. The patient, happily, was tractable, and quite willing that I should employ any means I might think fit. I introduced into one of the largest curved needles, commonly found in a pocket-case of instruments, as broad a ligature as I conveniently could, and, in presence of a female attendant, made a suture midway between the vagina and anus, approximated the edges of the wound with as much tightness as I thought prudent, and tied the ligature. I had resolved to use two stitches; but the patient being averse to it, and the edges of the wound being well adapted to one another, I remained content with one. I directed my patient to lie as much as possible with the thighs close together, to use frequent ablutions with warm milk and water, dressed the parts with a pledget of simple ointment, and left some aperient medicine to keep her bowels open. The cure went on favourably, my patient experiencing very little inconvenience, until, four days after the operation, upon calling, I was rather surprised and displeased when my patient told me, that having felt much pain during the night, she made her female attendant cut and extract the ligature. However, upon examination, union had taken place along the whole extent of the rent; and I had an opportunity of ascertaining that the cure was complete, when I attended her in a second labour.

The next case of lacerated perinæum I met with, was in December 1821. The patient was rather elderly, with a first child. The labour was very tedious; the parts, both external and internal, were remarkably hard and unyielding; the pains, for three days and three nights, very severe and forcing. I detracted blood to a considerable amount, but I cannot say that the benefit attained was great or decisive. The laceration took place when the child was passing the *os externum,* in the same direction, and to the same extent as in the last case. I could not, as in my last case, attribute the accident to the restlessness of the patient, but to the sitting posture which is almost invariably adopted on these occasions, in the part of the country where I at present reside. There is no making them lie in bed while the child is passing. The prejudices of ages are in favour of the sitting posture; and prejudices are very difficult to erase, especially where the means of information are so limited. The practitioner is thereby often placed in an awkward predicament; he knows that the risk of hemorrhage is much greater in the sitting than in the recumbent posture; and he finds, to his great annoyance, that he cannot sufficiently protect the perinæum at the critical moment when the child is passing the vulva; for at that time one hand, and often both, are necessarily occupied by the child; and, after the fatigue of two or three sleepless nights, he is incapacitated from acting with that firmness and energy which he is master of upon more favourable occasions. I treated this case exactly as I did the last one; the ligature was allowed to remain eight days before it was extracted; the union was complete, and no inconvenience has since ensued.

In the Number of the London Medical Journal alluded to, Mr Alcock hints, that at a future opportunity he means to change the ligature for some modification of the hare-lip operation. With all due deference to Mr A., I do not think he will gain any thing by the change; indeed, if it is the twisted suture he alludes to, I cannot think it at all applicable to the operation in the perinæum. Posture I have found to be an useful and almost an indispensable auxiliary, along with the ligature; and how could the thighs be kept approximated with the pins in the perinæum? Should any of these unpleasant accidents again occur in my own practice, I have no intention of altering a mode of treatment which I have found to answer every useful purpose.

A correspondent, in one of the Medical Journals, inquires, What is the *rationale* of supporting the perinæum?—and may not the very accident we are anxious to prevent, be caused by counter-pressure? For a solution of such queries, I presume we must resort to experience, rather than to argument. I do not pretend to illustrate the subject; but I have found that, in all cases where I have been enabled to guard the perinæum with one, and occasionally with both hands, this accident has not taken place. The *fourchette*, I conceive, is always ruptured at the first confinement; sometimes the rupture extends halfway or more towards the anus; but as long as the sphincter ani is not implicated, it is of little consequence. When the head presses upon the perinæum and vulva, counter-pressure, I apprehend, retards the delivery, and allows the parts opportunity to dilate, and afford a sufficient aperture for the head and body of the child to pass without causing laceration. Until convinced by demonstration of the inutility and mischief of such practice, I shall think that practitioner wanting in his duty, who neglects to protect the perinæum while the child is passing.

*Bernard Castle, May* 12. 1823.

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## VIII.

## *Practical Observations on Laceration of the Perineum.* By William Campbell, M. D. Fellow of the Royal College of Surgeons, and Lecturer on Midwifery, &c. Edinburgh.

> Segnius irritant animos demissa per aures,
> Quam quæ sunt oculis subjecta fidelibus.
> Horace *de Arte Poetica,* Lin. 180.

To the above accident, the sentiments of the poet may be well applied; for many there are practising the healing art, who, upon grounds somewhat plausible, not only dispute the liability of the perineum to laceration during parturition, but who even assert, that such injuries cannot be brought about without officiousness and carelessness on the part of the medical attendant. These accidents, however, are related in almost every publication on midwifery, and are occasionally met with in cases where the character of the practitioner cannot be involved. As a proof that they may happen where no blame can attach to the conduct of the practitioner, I am authorized, by a gentleman of respectability in this city, to state, that a most extensive laceration occurred under his care, while attending his own wife in her first labour; and that he is acquainted with another case where the accident happened under precisely similar circumstances. Both these practitioners have had considerable experience in midwifery, and instruments were not resorted to on the occasions in question. Injuries of this nature may be trivial, as in cases of a disunion of the *frænum* or *fourchette* only; or extensive, as in those examples where the rectum and vagina are converted into one common opening. In some instances, indeed, the perineum is perforated in the centre, and the fœtus and secundines propelled through this new passage,—leaving the *fourchette* entire on the one side, and the *sphincter ani*, and *recto-vaginal septum* uninjured upon the opposite. Cases of this last description are related by Denman, Baudelocque, Merriman, and in the third volume of the Dublin Hospital Reports, by Dr J. C. Douglas.

The following being the worst example of the kind which I have ever witnessed, I am induced to communicate a brief detail of it, with some additional remarks, to the profession. In April last, I was earnestly requested, by an intelligent pupil, to visit the subject of this case, to ascertain whether any thing could be accomplished to ameliorate her deplorable condition. The woman granted ocular examination of the parts, and the appearances were really distressing, and such as to remove the most obstinate incredulity on this point; for there was not a vestige of the anterior, and very little of the posterior, perineum remaining. The whole presented one continued raw surface, extending from the *nymphæ* to within a little of the point of the *coccyx*. The os uteri was very near the external parts; the organ itself, from want of the usual support, having descended from its natural situation. There was no line of demarcation between the vagina and the rectum. The intestine was not lacerated; its extremity was seen loose and unprotected, projecting between the nates. The sphincter ani was destroyed; for when a dose of opening medicine was given to the patient, she had not the power of retaining the feces; they frequently escaped involuntarily, even when the woman was not under the influence of aperients, while the intestine itself protruded to a very considerable extent during the expulsion of its contents. I requested Mr Lizars, Lecturer on Anatomy and Physiology, to take a drawing of the appearances; and I consider it a valuable addition to the materials already in my possession for the illustration of Lectures.

The account which this poor creature gave of herself was, that about five years previously, she had been delivered, for the first time, of an illegitimate child. A midwife attended from the commencement; but in consequence of the process being tedious, she called in a surgeon, who delivered with the forceps, and the perineum was torn during the operation. Neither the surgeon nor midwife, however, were aware of the accident, until the patient mentioned it to them some time afterwards; so that no measures were adopted to cause a reunion of the parts; and so very little did the individual herself suffer from it, that she left her bed, on the third day after delivery, to attend her usual occupation, without such premature efforts being followed by any unpleasant feeling. While in this loathsome situasion, she became a common street-walker; and she declares, that every sexual intercourse, since the accident, has been succeeded by a discharge of blood from the parts; yet, under all these disgusting circumstances, she persisted in her iniquitous career. About the month of October 1822, she again conceived, and premature labour came on in the early part of the seventh month, when she was delivered of a dead fœtus, which appeared to have been destroyed by syphilis, for the patient laboured under an attack of it at the time. During this last delivery, she thought that a further injury of the parts had been produced; and I apprehend it was at this time the posterior perineum suffered; but of this I cannot be certain, for she was not under our care at the time. I was sorry that particular circumstances prevented my attempting any thing for the relief of this individual.

An opinion has prevailed among medical men, that the accident is liable to be reproduced in succeeding deliveries, unless great caution is observed during the passage of the head. This was confirmed in a case in my own practice. The woman had formerly been delivered by what she considered rather an impatient midwife, and the perineum was very considerably lacerated during the transit of the fœtus. On the occasion of our attending her, the inferior commisure of the orifice of the vagina was callous; and, notwithstanding every precaution to prevent a repetition of the accident, I felt this callus give way under my hand, and the laceration was continued backwards to the rectum, although the head was small. Mauriceau, in speaking on this subject, says, " Ces parties ayant été dechirées une fois, il est bien difficile que la recidive ne vienne à l'accouchement suivant; à cause que la cicatrice qui s'y fait, retreçit encore les lieux davantage."

It has been said, that those injuries never happen except in consequence of officious interference; and in the 7th Number of the Medico-Chirurgical Review of London, we are told, that they " never recollect seeing an instance of this accident, where women were delivered before the arrival of the doctor," which is tantamount to a declaration, that the practitioner is always accessory to it. Dr Merriman, in his valuable work, on the other hand, observes, " It would perhaps be asserting too much to say, that this kind of laceration may always be avoided; but unquestionably the practitioner ought, in general, to be able to prevent so unfortunate an accident." With this able physician, who must be considered a good authority, I cordially agree; but the observation contained in the Medico-Chirurgical Review surprises me; and as it may have considerable influence on the younger part of the profession, I feel it my duty to state two cases in point, which are directly at variance with such a doctrine. The former of these instances happened in April 1822, where a young inexperienced gentleman attended a woman in labour of her first child. When the head began to press on the external parts, the patient became quite ungovernable, and the medical attendant went to call a more experienced person, who should have had charge of the case; but in his absence the fœtus was expelled, and the mother suffered considerable injury. In the other case, I was requested to attend a young woman in labour of her first child, on the night of the 25th of July last; but, being otherwise engaged at the time, the messenger was directed to call upon Mr Wilson, one of my assistants; the patient however was delivered before this gentleman arrived, and an extensive laceration of the perineum was the result. If we admit that lacerations proceed from inattention on the part of the practitioner, it is certainly inconsistent to contend, that such accidents do not occur, when no person is on the spot to assist the patient.

On the whole, however, I must observe, that since I have devoted my attention to the obstetric art, I have been surprised, in consequence of the very great thinness to which the perineum is reduced, that the accident in question does not more frequently happen, and not that it occasionally occurs; and this I should suppose to be the opinion of most practical accoucheurs. I am, however, ready to acknowledge, that injuries of this nature may occasionally be ascribed to officiousness and ignorance on the part of male as well as female practitioners; yet I must protest against the idea of the interference of the medical attendant being invariably the cause.

During the passage of the head through the *os externum*, the rectum, perineum, and vagina are carried so far downwards and forwards in the axis of the outlet, that were it not for the support usually afforded to those parts at this time; extensive lacerations might be much more frequently expected. Several cases have been communicated to me, where the perineum was lacerated to a very great extent, for want of proper support, the practitioner being otherwise occupied at the time, and the head expelled during his absence from the bed-side. I have been informed by a gentleman in extensive country practice, that he has frequently known the fingers to be insinuated between the perineum and the head, and the former drawn over the latter when it was on the point of passing through the os externum. Were this practice resorted to in primary labours, it would infallibly, in a great proportion of such cases, be attended with laceration. In support of the idea that such accidents may be ascribed to officiousness, it has long been urged, that the perineum of females who bring forth in retirement, with a view to conceal the fraility of the sex, is very seldom injured; and that the accident is never remarked among the brute creation, who are rarely assisted during parturition. The former of these opinions I believe to be pretty generally correct, but the latter is questionable. Females who are desirous of concealing their situation while in labour, resist as much as possible the action of the uterus, or, in other words, they do not exert the propelling powers energetically; the head, therefore, is not pushed against the perineum with any considerable force, and the effort is not quickly renewed, so that every part of the passages is dilated with slow and uniform gradation; while, on the other hand, those women who have no cause to be ashamed of their situation, and are, from the commencement, attended by a practitioner, trusting to their innocence and to the assistance afforded them during their sufferings, throw the propelling agents into action with all the power they are capable of exerting. In the one case therefore, it is obvious, that the distension of the perineum is progressive, rendering it far less liable to rupture; whereas in the other, the parts are stretched with violence and precipitation, by which they are much more likely to be injured. Some people may be inclined to think, that my reasoning here is not very correct, and perhaps it would have been as well not to have offered any explanation; for it appears to me, that the subject is one which cannot be well explained. Although I am of opinion, that the perineum is seldom lacerated in concealed labours; yet there are few practitioners extensively engaged in the department of midwifery, who have not met with accidents of this nature in such cases. In the lower animals, particularly the cow, the keeper will inform us that the perineum is sometimes injured, but by no means so often as among the human species. While writing these remarks, I was informed by a gentleman, that in a sheep which gave birth to twin lambs, he witnessed the conversion of the anus and vagina into one opening, of which accident the animal ultimately recovered. I do not state this with a view to draw any comparisons between the human female and the female of the lower animals; for the former has perhaps arrived at the highest degree of civilization, by which the fibres are intenerated, while many of the latter are still in a state of nature; so that, under these circumstances, there must be a considerable difference between their fibres in point of texture.

Although I have already admitted, that the accident in question is sometimes brought about, among the human species, from neglect and impatience on the part of the practitioner; yet, at the same time, it is proper to be aware, that individuals have suffered considerable injuries of those parts, under careful, if not good management. When we are operating with the forceps in the case of a very restless patient, a laceration may happen under the best care. An example of this nature occurred in my own presence in the summer of 1820, where an experienced practitioner supported the parts, while the extraction was conducted by another gentleman, equally well acquainted with his profession; and when the head was passing over the perineum, the patient began to toss about in bed, and an extensive laceration was the result of her restlessness, owing to the blades of the instrument having pressed forcibly against this part, in a state of distension. The experience of this case taught me a useful lesson; for ever since that time, while operating with forceps on a restless individual, when the head is so far advanced through the outlet as to justify me in thinking, that two or three pains will complete the expulsion, I remove the instruments unless uterine action has entirely ceased, and leave the rest of the process to be terminated by the natural powers; by which precaution I avoid injuring the parts. When the fœtal head is large, and the patient bears down with great violence, or springs away from the practitioner unexpectedly, towards the opposite side of the bed, while the head is advancing through the outlet, a disunion of the parts at some point or other takes place, owing to their being suddenly distended, or to the woman having withdrawn herself from the support afforded to the distended perineum, by the hand of the practitioner. A case of this nature happened in the autumn of 1821, under the direction of one of my assistants; and another, I believe, under similar circumstances in January 1822, where another of my assistants attended. This last patient died afterwards of abdominal inflammation, and I have now in my possession a preparation of her external parts, presenting an extensive laceration in the perineum.

These accidents are chiefly met with in primary labours, owing to the unyielding condition of the soft parts; they sometimes, though rarely, happen in subsequent parturitions, a difference to be explained by the relaxation consequent on childbearing. It is a very remarkable fact, that after the passages have been once dilated in consequence of parturition, however long a period may elapse before they again suffer dilatation from a similar cause, even if it should be fifteen or twenty years, they will yield to the transit of the fœtus with as much ease at the end of this lapse of time, as if the individual had been bearing children at the usual periods during this interval; so that when the parts have been once successfully distended, they are not afterwards liable to injury, unless from carelessness or impatience.

The liability of the perineum to laceration in primary labours, points out to practitioners the utility of having those parts frequently anointed during the process of parturition, although the necessity of such a measure is discountenanced by Professor Burns. The frequent application of unctuous substances to the external parts, independent of their producing relaxation, and thereby preventing laceration, must also be beneficial by diminishing the heat of the parts, and obviating the other bad effects of mechanical stretching. An abundant flow of mucus from the passages, must also act as a preventive of the accident in question; and supporting the perineum carefully with the hand, must, in opposition to any thing said against the practice, be considered in the same light; on which account, a neglect of this precaution cannot be too strongly reprobated. A practice inculcated by some teachers, out of a mistaken delicacy for the feelings of the patient, must occasionally contribute to the accident,—I mean interposing a cloth between the hand and perineum, when the latter is pressed upon. As the feelings of the sufferer must be equally hurt by introducing the fingers into the vagina to make the necessary examination, the practice had better be discontinued; for, when it is resorted to, we cannot say what parts are most upon the stretch, and require support, so well as we can do when the naked hand only is applied.

The slighter lacerations of the perineum, such as the mere division of the *frænum labiorum*, or *fourchette*, are frequent in primary labours, and are of little moment when properly treated. The practitioner, however, should give specific directions in those accidents; for, at the time of voiding the urine, they are the source of severe smarting pains to the patient. Frequently changing the cloths applied to the external parts, for the sake of cleanliness, and tepid ablution two or three times daily, with a solution of *sulph. aluminis* ʒij. in a pound of water, will be found sufficient; or in those examples attended with considerable irritation of the vulva, the application of a warm emollient cataplasm, frequently changed, and continued for a day or two, will be attended with decided benefit. Generally speaking, the more extensive injuries of the perineum can also be successfully treated; and, when we consider the importance of the object which the practitioner has in view, nothing surely can occasion greater solicitude on his part. For in cases attended with the division of the perineum, sphincter ani, and recto-vaginal septum, the situation of a female of delicate feelings must be deplorable in the extreme,—intolerable to herself, and disgusting to those around her. When we have failed in our endeavours to remedy these accidents, the results are the involuntary escape of the feces, protrusion of the rectum, with a perpetual stercoraceous odour, which the most scrupulous attention to cleanliness cannot prevent; and, sooner or later, a prolapsus of the uterus follows. In attempting a reunion of the parts, a great deal depends upon the patient herself; for, unless she observes a state of absolute quiet and rest, the results of such injuries are often unsuccessful.

Two modes of treatment have been recommended; first, to bring the lacerated surfaces into apposition, merely by securing the limbs together; and, secondly, to place two or three stitches in the perineum, and secure the limbs. A practitioner who is at all acquainted with the changes which the external parts undergo owing to their enormous distension during the expulsion of the fœtus, would scarcely think of recommending the perineum to be stitched; for the great relaxation consequent on such distension, should present to him a prospect of the parts cohering by merely bringing them into contact, without adding to the sufferings of the patient by an unnecessary operation, and wounding her feelings by an indelicate exposure. From the result of several cases, I am justified in saying, that, in recent accidents of this kind, sutures are not required. The removal of the urine and feces are points which require particular care and management. The former should be drawn off by the catheter at regular intervals, and the latter removed, by some contrivance which will not require much exertion on the part of the patient. With regard to the state of the bowels, it was at one time the opinion of some, that it would be advisable to induce constipation, in order to prevent the patient from being obliged to exert herself; but experience proved the absurdity of this notion, because the efforts required for the expulsion of indurated feces were found to derange the process of adhesion, and prevent reunion. On these grounds, therefore, our practice will be much more successful by keeping the bowels, if any thing, rather open; but by no means to occasion an actual purging, for fear of producing too much action and irritation of the parts which are the seat of injury. I have found, that in the cases under consideration, the free use of the subacid fruits will keep the bowels in a proper state. When laxatives are required, they should be exhibited in limited doses. To favour the approximation of the parts, the patient should be recommended to lie as much as possible on her side in bed.

In chronic examples, on the other hand, of which I have had little experience, I do not think that stitches can be always dispensed with, however painful and indelicate the practice may be to the patient. With one exception, however, I have always succeeded in causing a reunion, by securing the limbs above the knees, by means of a common roller; keeping the wound clean, by changing the cloths applied to the external parts sufficiently often; using ablutions daily, with an astringent lotion in a tepid state, such as formerly recommended; and placing a piece of dry lint over the wound after each ablution.

In chronic cases, where an attempt is made to obtain a reunion of the divided parts, the callous margins must be pared, or rendered raw by the application of caustic; and as they have had time to contract or recover their tone, some expedient must be resorted to, in order to bring them together, on which account I consider the use of sutures indispensable. An operation similar to that performed in cases of hare-lip has also been advised in the injuries embraced by the present remarks; and the ingenious Smellie put it to the test of experiment in one instance, but without success. I still think, however, that this expedient merits further trial; for the failure of a solitary instance does not justify us in rejecting the practice altogether. Whatever may be the results of future trials of this last method of cure, it is but too true that sutures have been found often unsuccessful; and although I have already acknowledged my experience to be but limited in cases of long standing, yet it consists with my knowledge, that repeated attempts at reunion on the same person by means of stitches, in the practice of several individuals in this city, have totally failed. Nor is it difficult to account for this general want of success. In the first place, we have merely to recollect, that the injured part is affected whenever the organs of respiration are called into action to any extent, by the diaphragm pressing on the abdominal viscera, and pushing these against the organs situated in the pelvic cavity; and, secondly, that the abundant exhalation from the perineum and parts connected with it, must be very unfavourable to adhesion. Dr Merriman, in his valuable work, confirms the unsuccessful termination of those accidents; for he says, that "the cure of a lacerated perineum is very difficult, in some cases impossible." M. Capuron of Paris, who is of the same opinion, relates two cases successfully treated with sutures, as a kind of marvel. M. Mauriceau, also seemed to have been aware of the difficulty of curing those injuries; for he observes, "Je ne conseille pas neanmoins à aucune femme de se faire faire une operation si douloureuse, pour la simple décoration d'une partie qu'elle ne doit jamais exposer à la vûe." Although I cannot agree with the opinion expressed by this last distinguished author, from its being injurious to the prosperity of science, and destructive to industry among our younger members; yet I must acknowledge, that I was reluctantly compelled to follow it in the case detailed at the commencement of these remarks, in consequence of some particular circumstances relative to the patient, which cannot be mentioned in this place.

It is said by Professor Burns of Glasgow, that considerable hemorrhage succeeds extensive lacerations of the perineum. I have always been taught, that lacerated wounds, except when large vessels are involved, do not bleed to any extent; which doctrine I have often seen verified, not only in the accidents at present under discussion, but also in the more general lacerations of other parts. This would be a natural conclusion, even were it not confirmed by experience; for, when the vessels are violently stretched, their projectile power must be in a great degree, if not entirely, destroyed; and the vessels which are liable to be injured in perineal lacerations, are not so large as to be considered exceptions to this doctrine.

*Edinburgh*, 2, *North St David Street*,
*June* 23, 1823.

## IX.

### *A Singular Distribution of some of the Nerves and Arteries in the Neck, and the top of the Thorax.* Observed by GEORGE WILLIAM STEDMAN, M. D., late President of the Royal Medical Society of Edinburgh. (*With a Plate.*)

WHILE employed in dissecting the neck, in the Dissecting-room of the Royal Surgical Academy at Copenhagen, in the beginning of May 1823, I discovered a singular distribution of the nerves and arteries on the right side, which may not be uninteresting to the medical public.

The subject was a thin aged female. I had dissected the upper part of the neck with great care, when, after displaying the superior laryngeal nerve on the right side, I discovered that a great number of branches were sent off about the middle of the neck, from the trunk of the *nervus vagus*, some of which proceeded to the thyroid gland, while the largest were reflected a little up, and entered the larynx, in the same manner as the branches sent off from the recurrent nerve. Of the lowest filaments, some entered the trachea, while others were lost upon the back of it. Proceeding farther down, I could not at first find the right subclavian artery, and could only see the right carotid arising from the arch of the aorta. I dissected with the greatest care for the recurrent nerve, but I could not find it; to my surprise, however, I discovered the right subclavian artery coming from behind the œsophagus. I traced the *nervus vagus* a considerable way down in the thorax, in order, if possible, to discover the recurrent; but I could not find it. I then proceeded to dissect the other side of the neck. Here I found the recurrent nerve with great ease, and traced it from its origin to its termination in the larynx. I next dissected the arteries. The left subclavian and carotid were in their natural situations; but the right subclavian rose from the arch of the aorta behind, and a little to the left side of the left subclavian, and, forming an arch, pierced between the œsophagus and vertebral column, in the region of the first vertebra of the back, and then passed over the first rib on the right side.

It is probable that, in this case, the nerves coming directly from the trunk of the vagus, on the right side, performed the same function as the recurrent; for they were distributed very much in the same manner as the branches of that nerve. Na-

Dr. STEDMAN'S CASE

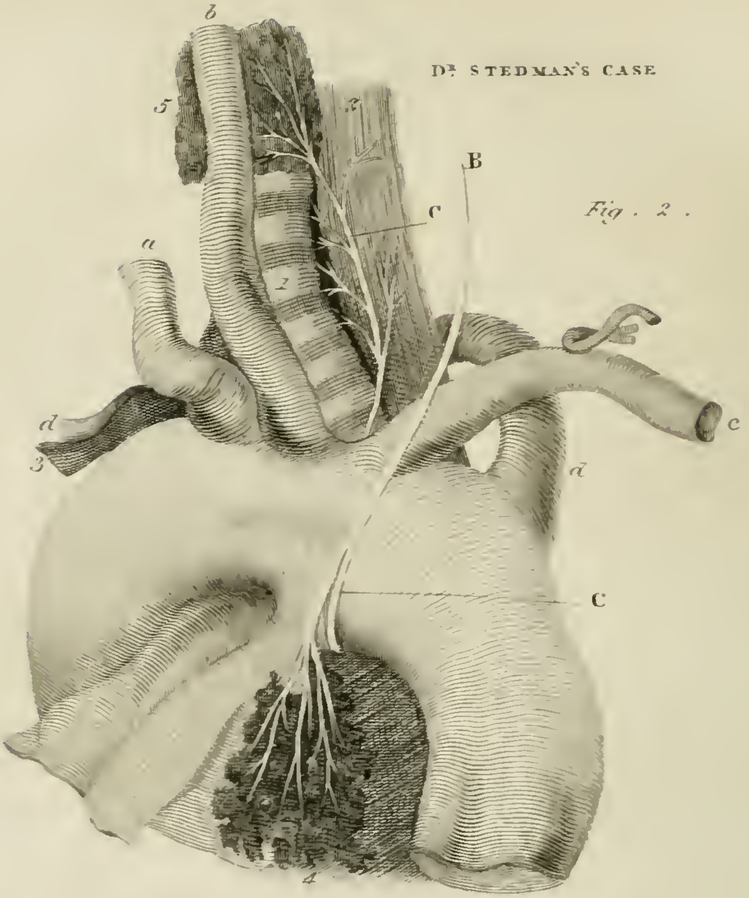

Fig. 2.

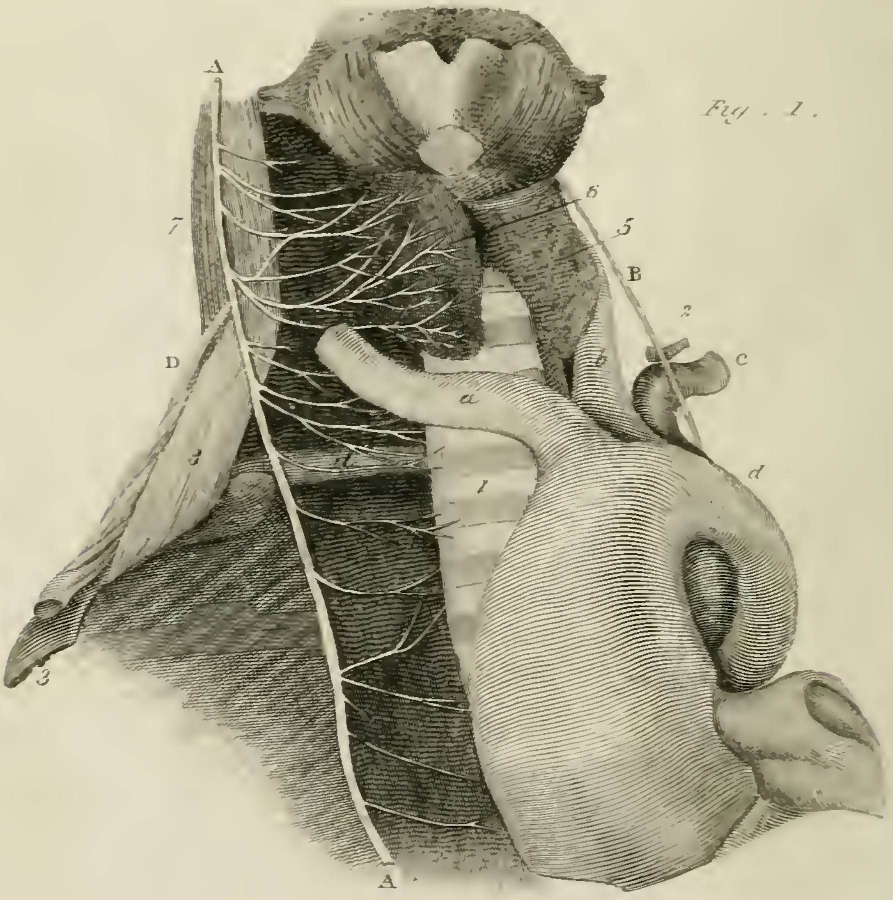

Fig. 1.

Edinr. Published by A. Constable & Co. 1823.

ture seems to have been forced to have recourse to this arrangement, from the singular situation of the subclavian.

I do not know if any other example of the want of the recurrent nerve is on record. Meckel says, that two are sometimes found; but he makes no mention of the nerve being altogether wanting. With regard to the course of the arteries, the deviation is not so rare; as the right subclavian has been frequently observed to come from the arch of the aorta on the left side; but in these cases, according to Meckel, it goes either before the trachea, or, what is more frequent, between the trachea and œsophagus. The drawings that are annexed were taken the second day after the dissection. I have compared them with the preparation which I presented to the Museum of the Royal Surgical Academy at Copenhagen, and can certify that they are correct in every thing but one particular, which is, that the artist has omitted to show the entrance of the nerve into the larynx, which I had distinctly traced.

### *Description of the Plate.*

Fig. I. is a view of the right side, and shows the anomalous distribution of the nerve; Fig. II. is a view of the left side, and displays the relative situation of the arterial trunks. The letters on both figures refer to the same objects.

A, The right *nervus vagus,* with its thyroid, tracheal, and œsophageal branches.

B, The left *nervus vagus.*
C, The left recurrent nerve, or *laryngeus inferior.*
D, Part of the right axillary plexus of nerves.
*a*, The right carotid artery.
*b*, The left carotid artery.
*c*, The left subclavian artery.
*d*, The right subclavian artery.
1. The trachea.
2. The œsophagus.
3. The first rib.
4. A portion of the left lung.
5. The left portion of the thyroid gland inflected.
6. The right portion of the thyroid gland reflected.
7. The *scalenus medius* muscle.
8. The *scalenus anticus* muscle.

## X.

## *Cases of Large Tumours in the Scrotum and Labium, removed by Operation.* By ROBERT LISTON, Surgeon, and Lecturer on Surgery, Edinburgh. *With a Plate.*

IN the end of last year, James Jeffrey, æt. 22, applied to me on account of an immense tumour, involving the external organs of generation, which had commenced when he was only ten years of age, and had gone on increasing gradually from that time. It measured 42 inches in circumference, and 40 from the verge of the anus to the pubes, betwixt which parts it was attached. The greater bulk of the tumour lay behind, and extended lower than the patient's knees; but, notwithstanding its prodigious size and weight, he walked tolerably well, and without the assistance of artificial support to the mass. The skin over the swelling was exceedingly coarse, and necessarily much stretched. From this cause, the hairs of the pubes, &c. were very thinly scattered. The urine escaped through the lower part, from the fissures of a large warty mass. The patient had been very anxious for relief; and for that purpose, and at various times (more especially when the swelling was very small), had applied to many practitioners; but no one proposed any means of relief or cure, and, for many years, the poor man, unable to follow any occupation, had lived a burden to himself and others.

On examining the tumour attentively, I formed the resolution of removing it, and communicated this to the patient.

He did not apply to me again till near the end of February, when he had taken a firm determination to run every risk, rather than continue to carry longer his daily increasing load.

On the 26th of February, the operation was undertaken. The patient was placed over a table, and the incisions made from behind. I had intended to preserve as much of the genital organs as I might find it possible to do, on examining their attachments and connexions with the diseased mass. But immediately on the bistoury being carried round the base of the tumour, the hæmorrhage was so profuse, that any attempt of the kind had to be abandoned, for the more essential and immediate object of saving the patient's life. Any attempt, then, to save these organs (of which he had never known the use—of which he never could have had any use—and which, after all,

# M^R. LISTON'S CASE OF TUMOUR.

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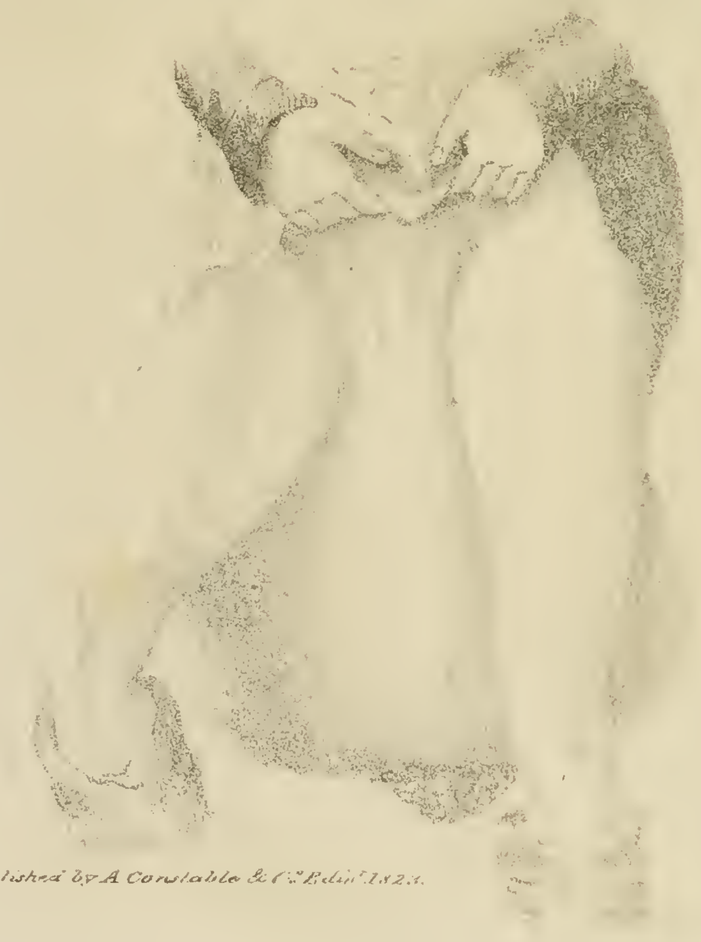

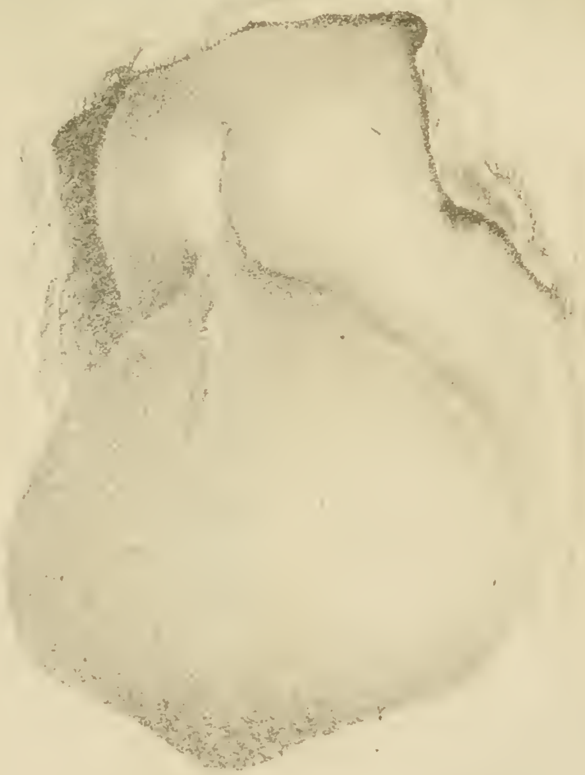

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Robertson & Ballantine's Lith^y.—

would have cut but an awkward appearance in the perineum, without any covering), would undoubtedly have been fatal.

The tumour was therefore detached as rapidly as possible—in not very many seconds; and the mouths of the large and numerous vessels running into it, covered, as they were divided, by our fingers. I had the valuable assistance of my friend Mr Syme, without which, the result might have been less favourable.

The flow of blood was compared by those present to the discharge of water from a shower-bath, so instantaneous and abundant was it. Before half the vessels could be tied, the patient sunk off the table, without pulse, and with relaxed muscles, voluntary and involuntary. He was turned upon his back on the floor, the remaining vessels tied, whilst a cordial (good strong whisky) was poured into his stomach. He was soon placed in bed, warmth applied, and the exhibition of spirits, &c. continued; and before much sign of recovery could be observed, he had taken lbj. of it.

The healing of the wound, and the reestablishment of his health, was very speedy. In three weeks, he was able to walk out; and soon after, the complete cicatrization of the wound took place. He is now quite well.

The mass removed weighed 44½ lb. (16 oz. to the lbj.), and that after the blood and a quantity of serous fluid had escaped. The substance of the tumour is very dense, approaching very much to the texture of the mammary gland, and seems to pervade the whole texture of the scrotum, integuments of the penis, and prepuce. The penis and testicles are closely enveloped in it. The *frænum preputii* is much enlarged, as thick as one's finger; and, by that, the point of the penis is attached firmly to the warty excrescence at the lower part of the tumour.

A few weeks after the above operation, a woman, about 30 years of age, of the name of Smith, applied to me on account of a similar tumour attached to the labium. It had been growing four or five years, and, from its size, had at length rendered her almost incapable of following her employment. The removal of it was attended with considerable difficulty, from the circumstance of its neck extending along the vagina a considerable way into the pelvis. On this account, the nature of the tumour appeared very doubtful during the operation. The attachments of the tumour to the *sphincter vaginæ* were so strong as to be separated with difficulty. After this was accomplished, the contraction of the orifice was very remarkable. The case terminated very favourably. The woman enjoys perfect health.

The weight of this tumour was above 10 lb., and its structure much the same as Jeffrey's.

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## XI.

## *Two Cases, in which Tracheotomy was performed with Success; one for Œdema Glottidis, &c.; the other on Account of an Injury of the Larynx.* By ROBERT LISTON, Surgeon, and Lecturer on Surgery, Edinburgh.

W. C. ætat. 36, called on me, April 26th, to have advice in regard to his complaints. His breathing was so difficult, and his voice so much gone, that he brought a friend along with him to give me some account of the progress of the disease. It appeared, that he had been complaining for six weeks. Upon a common sore throat, as he supposed it to be, with difficult deglutition, &c. supervened dyspnœa, for which he had his neck leeched, blistered, &c. The laborious breathing had gradually become more and more severe, the inspiration, especially, being long effected with great difficulty, and attended with a peculiar hissing noise. His expectoration was difficult, but in no great quantity. No change of structure could be ascertained by examination with the finger. He was ordered to rub strong mercurial ointment, with camphor, on the sides of the throat.

On visiting him on the 29th, his breathing had become still more difficult, his whole appearance changed for the worse, his countenance anxious and contracted. His mother stated, that, for the three weeks preceding, he had slept little or none; that whenever he composed himself to rest, such violent fits of difficult breathing came on, that, from a feeling of suffocation, he started up, and, grasping at the nearest object, appeared to be dying. She seemed to dread, as much as he did, the approach of night, from an apprehension that he could not live over it.

The operation of tracheotomy was proposed, and eagerly agreed to by himself and friends. During my absence to procure the necessary instruments, he appeared to be in the greatest dread lest any thing should intervene to prevent my coming to attempt his relief.

A free longitudinal incision was made into the trachea, and a large funnel-shaped tube introduced, through which he breathed freely. Upon filling his lungs for the first time, on the completion of the incision his feelings appeared to be very strange. He struggled a little, and exclaimed that he was dying. A considerable quantity of bloody mucus was discharged immediately on the perforation being made into the trachea. As swelling took place in the edges of the incision, the tube was displaced from the trachea; and, but for the anxious care of my pupils in attendance, who, with probes, &c. wiped away the mucus, and kept separate the edges of the wound, the patient must have been suffocated before the morning, when another and longer tube could be provided. When this was introduced, his breathing became quite natural, being performed without noise or difficulty; and he then signified that he was quite relieved. His sleep became composed, his appetite returned, and very soon he regained entirely his health and strength. In a few days, he was enabled to withdraw the tube, and replace it after having it cleaned. Mercurial frictions were continued, but were soon discontinued, on account of bloody expectoration occurring.

After some weeks, he began to breathe more freely through the natural passages, on withdrawing the tube, and closing the orifice, while his voice gradually returned. The size of the tube was diminished, and on the 8th of August removed entirely. In two days he came to me in great distress, having slept none, from a return of his former unpleasant feelings during the night; so that it was thought prudent to replace the tube, which now gives him no inconvenience. When he wishes to speak, he presses his hand on the worsted *comforter*, so as to close the orifice of the tube. Whether or not the obstruction will ever be so far removed as to admit of the closure of the artificial opening, appears now to be exceedingly doubtful. It may be mentioned, that attempts have been made to pass instruments, both from above downwards, and from below (from the wound) upwards, into the larynx, but unsuccessfully. The irritation produced in these endeavours was unbearable by the patient.

Two other cases, in every respect similar, have occurred in my practice within the last six months. The subject of the one, a man above the middle age; the other in the person of a woman about twenty-five. The symptoms, in the former, were not very severe, and they were for a time rendered less so by friction with the antimonial ointment, &c. He lived at some distance; and, from his not presenting himself as usual, it was supposed that he had quite recovered. I have since understood that he died very suddenly, (suffocated, no doubt), in one of the paroxysms. It is much to be regretted, that an opportunity of examining the appearance in the larynx was not obtained. The operation was proposed, and agreed to, in the second case; but some foolish people, calling themselves her *friends*, overruled it, and removed the patient. At the time of writing this she was still alive—her sufferings rather aggravated. The result will be attended to, and duly communicated.

The symptoms under which these three patients laboured, are most accurately described under the term, "*L'Œdeme de la Glotte*," by Bayle, in a Memoir on the subject. He details several fatal cases, with dissections; and urges, as the only chance the patient enjoys, an *early* performance of the operation, before the mucous discharge has become profuse, and before the lungs or head have begun to suffer. As the Memoir is scarce, I insert a short quotation from it, describing the appearances on examination after death. "Toujours dans les cadavres les bords de la glotte sont gonflés, épaissis, blancs, et comme tremblottans; ils forment un bourrelet plus ou moins saillant, et très infiltré d'une sérosité qu'il est très-difficile de faire écouler, même en comprimant entre les doigts une portion de la membrane à laquelle on a fait plusieurs incisions. Un tissu cellulaire extrêmement dense retient le liquide dans un réseau très-serré dont il semble que les aréoles ne communiquent point ensemble. Les bords de la glotte, infiltrés et gonflés, sont disposés de telle manière que toute impulsion que vient de pharynx les renverse dans l'ouverture de la glotte, qu'ils bouchent plus ou moins completement; et toute impulsion qui vient du côté de la trachée-artère repousse ces bourvelets sur les côtes de l'ouverture de la glotte, dont l'orifice devient très libre."

After having written out the above, the following very interesting case, requiring the operation of tracheotomy, occurred. Elizabeth Thomson, æt. 8, a fine healthy child, in running across the street, fell, and struck the larynx with great force upon a large stone. She was taken up quite lifeless, and it was some time before respiration was at all established. Mr Murray, who was first called, finding her face livid, opened the temporal artery, and applied leeches to the child's throat, with some little relief. I saw her about three hours after the accident. The breathing, inspiration more especially, was exceedingly difficult; and this appeared to proceed not only from the injury of the larynx, probably occasioning loss of power of the muscles, but from the collection of some fluid in the trachea and its ramifications. The child was evidently in such a state, that, unless active means were had recourse to, and that speedily, a fatal termination would ere long ensue.

An opening was made in the trachea, and the operation was followed by immediate relief. A quantity of coagulated blood and bloody mucus was evacuated by the opening; and when the discharge and coughing had ceased, a tube was then introduced, with most marked relief.

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## XII.

### *On the Febrifuge Power of the Sulphate of Quinine.* By D. J. H. Dickson, M. D., Clifton.

I ought perhaps to apologize for troubling you with my yet imperfect experience of the febrifuge power of the sulphate of quinine; but as I seldom meet with intermittent fever here, and as it appears to me to be a valuable remedy in this disease, I send you a short account of some cases, in which it proved to be very efficacious.

The first was that of my youngest daughter, Rose, nearly five years of age, who had been ill for more than a month, and was much reduced by repeated attacks of fever. Her disease at first assumed the character of the infantile remittent; and appeared to depend upon a disordered state of the bowels, which were so torpid as to require the powerful and continued exhibition of purgative medicines. After, however, this state of the alimentary canal had been corrected, the fever still continued to recur, but under the tertian, and latterly the quotidian type, with morning paroxysms, which lasted until the afternoon, and having the cold, hot and sweating stages, distinctly marked. She took, in the whole, fourteen grains of the sulphate of quinine, in doses of one grain, twice a day; at first, viz. in the morning and evening; and afterwards in the morning only, some hours before the expected exacerbation. The paroxysm did not once recur after she commenced the use of this medicine: but it is proper to mention, as vitiating the conclusion, that disappointed in my expectation of receiving it from London, I had, the day previously, for the first time, given her a drachm of bark in powder, divided into three doses; and that she had escaped the usual attack of fever on the morning of its first exhibition.

This was in the beginning of May; and she has not since experienced any relapse.

The second case which occurred about the same time, was that of a girl, upwards of seven years of age, under the immediate care of Mr Henderson, surgeon in Bristol, to whom (as it was not then to be procured here) I sent six grains of the sulphate of quinine, to be divided into as many doses. The patient had been attacked ten days before he was called in, with a quotidian intermittent, the different stages of which were strongly marked; and the paroxysm was usually of great severity, as it frequently lasted from noon until midnight. After the bowels were cleared, she took an emetic in the morning, a short time before the expected accession, by which the fit was considerably mitigated and shortened; but on the following day it returned at ten o'clock, which was two hours earlier than usual, and with great severity. As this anticipation of the paroxysm was unexpected, she had taken the first dose of the sulphate of quinine only two hours previously, and apparently without any effect. On the succeeding morning, however, she took the powder earlier, and escaped the paroxysm altogether; and it was repeated three mornings successively, with the same favourable result, when it was discontinued. In about ten days afterwards, she had a relapse, arising, there is reason to believe, from over-fatigue and insolation. After the paroxysm was over, her mother gave her the only remaining powder; and since that period, she has had no return of fever.

The third instance in which this remedy has been tried, was also a girl, who had been subject to febrile paroxysms for several weeks, generally coming on every other morning, and declining about noon, but milder than in either of the preceding cases. On the intermediate days, she appeared to be in her usual health; but she was evidently thinner than formerly. I directed her to take a dose of calomel; and to have five doses of the sulphate of quinine. According to her mother's report, the fever was milder on the day on which she commenced the medicine; and it did not afterwards return, although I found, that altogether, she had taken only three of the powders, each of which consisted of one grain of the sulphate of quinine, mixed with sugar.*

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* This medicine was prepared by Mr Morson, chemist, Fleet Market; but in the process which he has detailed in the 96th Number of the London Medical Repository, the cinchona lanisfolia is erroneously directed to be employed, instead of the cinchona cordifolia. All the three species, however, Mr Morson informs me, contain quinine, as well as cinchonine, though they vary considerably in quantity. The C. lanci-

A medical friend here, to whom I mentioned the recovery of my little girl, has exhibited this salt with similar success in the case of his son, who returned from college, some weeks ago, affected with a tertian intermittent. During three days he took three grains of it thrice; and afterwards one grain twice a day, for the same period; and he had only two paroxysms of ague after he commenced the use of this remedy.

I have also prescribed it with much benefit as a tonic and stomachic, in some other cases, and one great advantage it possesses is the smallness of the dose; for it is no small objection to the administration of bark in substance, especially in debilitated habits, that it frequently proves heavy and offensive to the stomach; but my experience is yet too limited to allow me to speak decidedly of its utility in other diseases. I may moreover add, that in a letter which I received lately from Mr Brodie, he observes—"I have seen the sulphate of quinine exhibited several times, and believe it to be a very useful addition to the pharmacopœia." These trials, limited as they are, coincide with the reports which have been already published, of the febrifuge powers of the sulphate of quina, and they induce me to entertain a very favourable opinion of this medicine in fevers of type, as well as in other diseases, evincing a tendency to periodical recurrence; and in fine, as a tonic generally, wherever the bark itself may be administered with propriety. If, then, this saline preparation of it shall be found to answer the purposes of cinchona in substance, it is unnecessary to enlarge further upon the great advantages of the minuteness of the dose of a few grains, particularly for children; and indeed, as has been already observed, in all cases where the powder of bark would be nauseating and oppressive to the stomach.

It happens still more frequently in tropical countries, that this organ is weakened, and rendered more irritable by the effects of climate or disease; and there, also, in those fevers in which the use of peruvian bark is admissible, as well as in other disorders, where it may be indicated; yet where the gastric irritability is such as to preclude its employment, it may be fairly presumed, that the sulphate of quinine will prove to be a valuable acquisition.

*Clifton, July* 1823.

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folia contains a large proportion of cinchonine, and but a small proportion of quinine; whilst the C. cordifolia contains a small quantity of the former, and a large portion of the latter. The C. oblongifolia contains nearly equal parts of both cinchonine and quinine, or cinchonia and quina, as these alkaline bases may be more conveniently designated.

## XIII.

*Case in which Hydatids were discharged in considerable Quantities from the Intestines.* By Mr T. M. GREENHOW, Surgeon, Newcastle.

MASTER SELKIRK, aged 9, went to school on the morning of May 2d, in his usual state of health. At 11 o'clock, *a. m.* he was taken home ill, having been suddenly seized with acute pain in the head and abdomen, accompanied with violent shivering. I was requested to visit him at 9 o'clock the same evening. He then complained of severe pain in both temples, great pain and tenderness on pressure of the abdomen, impatience of light, eyes glassy, and wild in their expression, delilirium, subsultus tendinum. His countenance was exceedingly oppressed, the surface generally very cold, tongue parched, and covered with a thick brown fur; pulse very quick (130), and wiry. He had vomited frequently, and had passed several small slimy stools. *V. S. ad ℥vj.* Leeches to the temples; warm bath, and friction with a coarse cloth or flannel. *Cap. calomel. gr. iv. statim, et infus. sennæ cum magnes. sulph. primo mane.* The bleeding produced sickness, and was followed by some remission of pain in the abdomen and temples.

*May 3d*, 5 o'clock, *a. m.*—Had been easier, and slept in the early part of the night, but had lately become worse. Much pain both in the head and abdomen; great restlessness and delirium. He had passed both urine and feces unconsciously. Pulse very quick and sharp; surface still very cold. *V. S. ad ℥iv.* To be sponged with warm vinegar and water, afterwards repeating the friction, and applying heat to the feet and hands. The stools were still scanty and slimy, and he had vomited the draught. *Capt. calomel. gr. iv. statim, et hor. postea ol. ricini. ℥ss.*—10 o'clock, *a. m.* Head and abdomen have been easy since the last bleeding. Delirium continues, and he is very drowsy. The castor oil was rejected. Stools of the same character, and still passed insensibly. Pulse very quick, and small; coldness of the surface continues.

*Applic. lyttæ empl. capiti. Capt. calomel, gr. iii. 4ta quaque hora.* 4 o'clock, *p. m.* No material change. Has vomited every thing except the calomel. No change in the nature of the stools; but he has used the pot since the morning, An effervescing draught to be taken occasionally.—10 o'clock.

*p. m.* The pulse is now a mere flutter at the wrist, scarcely to be felt, and cannot be counted. No pain, but excessive restlessness and delirium; frequent hiccough; stools as before; countenance greatly oppressed; and the surface everywhere pale and cold. Repeat the warm bath and friction.

*May 4th, morning.*—Remains much in the same state. Says he has no pain. Stools as before. *Cap. calomel. gr. iv. 4ta quaque hora.—Evening.* No change. Repeat the bath and friction.

*May 5th.*—Stools of the same description. Pulse rather more distinct. The blister which was applied on the 3d remains on, but has not risen. *Cont. calomel. gr. iv. 4ta quaque hora. Injic. enema purg.—Evening.* Is somewhat better. Stools rather more plentiful. Pulse more distinct. Has slept in the course of the day, and has retained some chicken broth. Less coldness of the surface. *Cont. calomel.* Repeat the bath, &c.

*May 6th, morning.*—A great improvement has taken place. Large quantities of hydatids have been discharged from the bowels, accompanied with much mucus. All his bad symptoms have vanished. No pain; no delirium; tongue cleaner and moister. Skin comfortably warm and moist. Pulse soft, and not exceeding 100. The vomiting has ceased, and he has had some refreshing sleep. More hydatids were discharged in the course of the day. The mouth became affected with the calomel, which was now omitted, 74 grains having been taken in three days.

From this time his convalescence has been progressive, the bowels being kept open with a mixture of magnesia taken with lemon juice. That the remarkable matter discharged from the intestines of this patient was the cause of this very acute attack, cannot, I think, be doubted; especially when it is considered how all the unfavourable symptoms disappeared at the same instant with its removal from the system. How long it might have existed there, it would not be easy to determine; but its formation must probably have been going on for a very considerable length of time. For the last year he had been subject to occasional disordered action of the abdominal viscera, attended with griping, and local tenderness in the region of the liver. During the winter, an attack of this kind had been overcome by repeated doses of calomel and saline purges; and for several weeks he appeared in perfect health.

The hydatids discharged, in this case, were of various sizes and different colours. Some were transparent and light brown; others opaque and pale green, very nearly resembling boiled gooseberries, and of about the same dimensions. Others were much darker; and the mucus which accompanied them was also of a dark green colour, probably from the effects of the calomel. They were unaccompanied by any feces, the whole being entirely without odour. I should, perhaps, have felt diffident in declaring this matter to consist of hydatids, notwithstanding its strongly marked character, had not the opinion of Dr Ramsay (who had visited this patient with me on the 3d and following days) entirely coincided with my own respecting it.

This case appears to me curious and interesting, both on account of the train of alarming symptoms which were induced, and of the cause by which they appear to have been occasioned. When I was first called to this patient, I was impressed with a conviction that inflammatory action was going on in the abdomen, and that great determination existed to the head. In these circumstances, I thought it right to bleed, although the general state of the system rendered it necessary to do this with great caution; and though the quantity of blood drawn was small, the relief obtained was considerable; and after the second small bleeding, the pain both in the head and abdomen was permanently relieved. It will readily be supposed that little hope of his recovery was entertained; and, indeed, on the evening of the 3d, I must confess I considered him actually in a dying state. The warm bath and friction I believe to have been the means of saving him at that time. It is remarkable, that, after a cold stage of pyrexia, which lasted more than three days, when at length (on the discharge of the offending matter from the intestines) reaction took place, it should have been so moderate and healthy. The incalculable rapidity and extreme oppression of the pulse at once subsided, and a moderate, soft, and equable action of the vascular system was established.

*Newcastle*, 24*th May*, 1823.

# PART II.

## CRITICAL ANALYSIS.

### I.

1. *Remarks on the Epidemic Yellow Fever, which has appeared at Intervals on the South Coasts of Spain, since the Year* 1800. By ROBERT JACKSON, M. D. London, 1821. pp. 207. 8vo.

2. *Remarks on the Yellow Fever of the South and East Coasts of Spain, comprehending Observations made on the Spot, by actual Survey of Localities, and rigorous Examination of Fact at original Sources of Information.* By THOMAS O'HALLORAN, M. D. Member of the Medical Academies of Madrid and Barcelona. London, 1823.

SPAIN possesses a physical surface, which peninsular form, southern situation, and genial climate, undoubtedly render the most beautiful and favoured of Europe; and of all the provinces of this fair country, none can be compared to Andalusia, whether we look to the abundance and beauty of its natural productions, its happy maritime situation, or the pleasing variety of hill, plain, valley and river, with which its surface is embellished. Cooled on the north by the breezes from the elevated summits of the Sierra Morena, traversed through a great part of its extent by the Guadalquivir, constantly augmented by the waters of many tributary streams which issue from the subordinate mountain-chains of the province, and presenting a long and not unvaried line of coast washed by the Mediterranean or Atlantic, it appears to be placed in the most choice part of Europe, whether for the purpose of supplying a numerous population with all the necessaries and comforts of subsistence, or deriving riches from an extensive system of internal and foreign commerce. Besides the ordinary and necessary growth of grain, for which it has been long reputed the most fertile province of the country, it abounds in all those delicate productions which the refinements of social life have rendered necessary to human comfort. Of the four kingdoms or principalities into which it was formerly divided, Cordova, the most northern and inland, is chiefly mountainous, yet abounds with cultivated and fertile grounds. The mountains even are covered with vineyards, and forests of olive, orange, and citron,—with the fruits of which the air is perfumed, and the scenery adorned. The western division of Andalusia, formerly termed the kingdom of Seville, varies in its surface and productions. Notwithstanding several barren tracts, as between Cantillana and Seville, and between Chiclana and Algeziras,—the plain of Seville, watered by the Guadalquivir, affords rich crops of corn, and abounds in olives of the best quality. In the same territory, the lands of Herrera, Estepa, Carmona, and Alcala de Guadayra, are rich in the same productions; and it is impossible to cast the eye on the grounds of Puerto de Santa Maria, and of Xerez de la Frontera, which are almost uninterrupted vineyards and olive-groves, without perceiving the justice of the title which has long been given to this district, of the vineyard of Spain. Grenada, however, is the part of Andalusia which is most remarkable for the richness of its soil, and the beauty and abundance of its productions. Whoever has travelled through the Vega of Grenada, where magnificent forests of oak are chequered with the milder beauty of the olive and palm, must have been struck with admiration of the luxuriance of vine, olive, and fig, and been charmed with the rich fragrance of the orange, the lemon, and citron-tree. The Soto de Roma, a beautiful forest of elm, ash, and white poplar, occupying a considerable extent of its surface, is surrounded by fertile and well-cultivated farms and meadows;—and at the northern extremity of the Vega, the Elvira hills, rising by gentle acclivity, and covered by an endless and varied succession of vineyard, orangerie, and olive-grove, give the whole landscape a species of rich beauty, which is not perhaps equalled in any part of the world, out of the tropical countries. Every object, indeed, on which the eye is bent, shows the unbounded and unequalled luxuriance of the vegetable world; and the surface of this part of Andalusia is much less similar to the stinted and scanty growth of European fields, than to the endless and varied profusion of the tropical regions. It is impossible to wonder at the panegyrics which the Greek and Roman poets lavished on this favoured land, or not to perceive the reason of the eagerness with which the Romans grasped at this, above all the old Continent. The enterprising avidity with which, at a later period, the Moorish warriors invaded this desirable coast, and the romantic courage with which they afterwards maintained their acquisition, are well known, and, in some degree, justified by the numerous advantages and tempting situation of the south of Spain.

Favoured, however, as this part of Spain undeniably is, in the enjoyment of the most valuable natural advantages, and in the possession of all those comforts which are believed to contribute to human happiness, it is still, by no means, an enviable abode, or a fortunate situation for the dwellings of men. The luxuriant verdure of its surface, and the varied fertility of its soil, form only a more remarkable contrast to the insalubrity of its air, and the violence of the pestilential maladies by which its towns are ravaged, and its population is destroyed. The whole province is, more or less, infested with intermitting fevers of a malignant form, often complicated with affection of a vital organ, or masked and disguised under the form of local disease; and not unfrequently, when season or other accessory causes concur, this fever, which is to be regarded as inherent in the soil or country, is so general, that it spreads, from one to another part of the district, with a rapidity which is uniformly ascribed, by the unfortunate inhabitants, to the invisible flight of a contagious agent. This, however, is not the only malady which deforms the natural beauty of the province. A fever, or febrile disease of unequalled malignity, and irresistible rapidity in progress, at least when compared to the usual forms of European fever, rages at certain seasons, and in particular districts, with a truly pestilential virulence;—and, while it uniformly gives rise to a very alarming degree of sickness and mortality, has been known occasionally to destroy, within the short space of three months, fully one-sixth,* or even one-fourth, of the inhabitants of a very populous city. This malady, which so closely resembles that which has been termed *Yellow Fever*, as to prevent its being distinguished from it by the most experienced and sagacious observers, has occasioned much controversy, not only in Spain, and among Spanish physicians, but also among those English practitioners whom curiosity, business, or other causes, have led to take interest in its character. A laudable ambition of contributing to the determination of the ambiguous points of its history, is the chief cause of the writings both of Dr Jackson and Dr O'Halloran.

The short but interesting work of Dr Jackson demands our attention for two reasons:—*First*, Of the many excellent writings which have proceeded from the pen of the author, it is, in our opinion, the best;—and, *secondly*, It contains the clearest exposition which we have yet seen, of the formation, natural history, varieties, and pathological characters of a disease, which has occupied the observation of some of the most eminent civil and military physicians, both among our own countrymen, and among those of France, Spain, and Italy. Dr Jackson has indeed brought to the investigation of his subject, that spirit of close, faithful, and discriminating observation, which is the genuine basis of accurate knowledge, and which will confer on his descriptions of disease and his views of the cause and nature of the morbid process, a value which no quality of temporary or partial duration can possibly communicate.

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* Cadiz, in the epidemic of 1800.—*Jackson*, p. 15.——Xeres, in 1800, lost one-half of its population; Puerto de Santa Maria, one-fifth; Seville, more than one-sixth. "The population of Tortosa was 15,000; one-fourth emigrated; four thousand, it is conjectured, died;" consequently the mortality in Tortosa was actually above one-fourth of its ordinary population, and very nearly two-fifths of the population which remained during the prevalence of the epidemic.—*O'Halloran*, p. 121.

To us, however, independent of the value of his writings, the personal and medical character of Dr Jackson present a peculiar interest. The honourable and truly scientific zeal, with which he has persevered in the investigation of the most uncertain and hazardous, and, undoubtedly, not the least useful subjects of professional inquiry, must endear him to every mind that has the advancement of medicine and the welfare of mankind at heart; and the firm and indefatigable perseverance, with which he has overcome the difficulties which beset his path, and thwarted his career, must hold him up as an object of respect and veneration to all who love science, or esteem the adventurous spirits who have courage to explore its dangerous and difficult regions. If ever there was an example of this kind, which has such claims on the nobler feelings of the profession, it is undoubtedly the present; and if it were possible to assemble circumstances, which could give these feelings a singular and unequalled degree of strength, we should say, they would be found in the formation of the work before us. The diligent investigation of the pathology and treatment of any disease, however unimportant, is doubtless a meritorious duty, and cannot fail to reflect credit on the author who performs it successfully;—the investigation of a disease, somewhat obscure in nature and origin, and certainly increasing in interest in consequence of our increased commercial relations with the shores on which it prevails, must be entitled, if possible, to additional honour, and confer more marked distinction;—but when the value of each of these circumstances is enhanced by the extreme danger, whether real or supposed, with which the prosecution of the investigation is attended, whether the morbific agent derive its birth from soil and climate, from atmosphere, or from the persons of human beings, we believe it will at once be admitted, that the physician who accomplishes such a task, must occupy a distinguished place among the eminent members of a scientific profession, and is entitled to a more than ordinary share of that honourable homage, which awaits researches so generally useful as those, in which our author has been engaged. This task Dr Jackson has performed; and to this laudable eminence he is justly entitled. His "Remarks" are contained in the small compass of seven chapters; the two first of which are devoted to the subjects of medical topography, and the question of foreign importation, and internal land propagation of the disease. In the third chapter, the author treats of the general nature and characters of Andalusian yellow fever; and, in five sections of the fourth, gives very accurate accounts of those varieties which occur in the persons of individuals of different organization and temperament. The fifth is on the prognosis; and, in the sixth, the author describes the treatment employed by Spanish physicians, and that which he has found most beneficial. The seventh, which is the last, contains some judicious observations on quarantine-law, and on the practical application of correct views of the nature of this disease to the health of communities, and the security of commerce. These various subjects are investigated by Dr Jackson with much care, and explained in a manner as perspicuous as the subject admits. His observations to discover the mode in which the disease is generated; his correct descriptions of its general appearance, and of the modifications which it assumes in the constitutions of different orders of persons; his views of its pathological character and peculiarities; and, in short, the curative principles and measures which he unfolds, afford, in general, the most excellent specimen of philosophical inquiry, applied to physic, which has, for a considerable time, fallen under our inspection. We will not, however, speak of this as a faultless production; and to many, the distinctions which the author has made, and the language in which he has expressed them, when describing the varieties of fever, as they appear on the *base* of the *different temperaments*, will appear fanciful and innovating. This singularity, however, ought to be entirely overlooked, as it involves no hypothetical views,—and should indeed be considered as one of the distinguishing marks of accuracy in observation, and fidelity in description, which are necessarily connected with the subject, and without which, or some worse substitute, it must have been impossible to communicate the knowledge of a disease so various in character, as that which Dr Jackson describes.

The work of Dr O'Halloran, who accompanied Dr Jackson in his scientific inquiry, and to whose zealous diligence, in examining the bodies of those who had died of the disease, we are indebted for the most satisfactory pathological information, we have associated in the same article, as a most valuable accompaniment to that of Dr Jackson. The objects of Dr O'Halloran's researches may be said to relate principally to the two questions of the contagious origin, and the peculiar pathological character of the disease. Like his venerable companion in scientific inquiry, he maintains the decided opinion of the disease depending not on contagion, but on the morbific quality of the air in most of the coast-towns of Spain, during the concluding summer and commencing autumnal months. With the view of establishing this opinion on a firm and irrefragable basis, he examines the medical topography of Barcelona, Tortosa, Malaga, Puerto de Santa Maria, Xerez de la Frontera, Lebrixa, and San Lucar de Baromeda; inquires into the circumstances under which yellow fever appeared at these several places; and shows, that, in general, it can be traced to causes perfectly different from those concerned in the formation of a contagious disease. These investigations occupy the greater part of Dr O'Halloran's volume; and the eleventh chapter, which is also the last, contains several accurately-described cases of well-performed dissections, which form a valuable acquisition to our pathological knowledge of this disease. This little work is, in every respect, worthy of a practitioner who was companion to Dr Jackson; and it is impossible to peruse either treatise, without recognising the patient investigation and rational views of the authors. We indeed feel it as a proud distinction, that, while the most eminent of the Spanish physicians are themselves ardently engaged in observing the phenomena, and discovering the best method of checking the ravages of a disease, which is annually becoming more formidable, we can boast the publication of two treatises by English authors, which exhibit the most correct detail and scientific arrangement of facts, and the most probable views, that have yet been laid before the public.

It is to the first of these authors chiefly that we are indebted for a particular and correct history of the phenomena of the disease. After various observations on its name, nature, and distinguishing characters in general, in the Third Chapter, Dr Jackson proceeds, in his Fourth, to show, that the yellow fever, as it is named, of Andalusia, may be modified or varied in its phenomena, 1*st*, As it occurs in persons in whom the sanguine temperament predominates; 2*d*, As it occurs in the persons of those in whom the lymphous temperament is most conspicuous; and, 3*d*, As it appears to exercise a particular influence on the serous capillaries.

The first of these forms of fever is distinguished by great vascular excitement, and that state of the several vital actions and functions, which has been called *inflammatory*. It is indeed the angiotenic form of febrile motion. The description given by Dr Jackson is accurate and autoptic, and will be studied with much advantage by all who are desirous to understand this disease, and its relation to the Causus, or burning fever of the Archipelago, described by the Greek physicians. It was, however, much less common at Cadiz and Xerez in 1820, than the other two forms of fever.

" The second of these forms, characterized by defective energy in the circulation, and consequent imperfect function through the whole system, was common." The description given by Dr Jackson is elaborate and correct, and should be diligently perused by those who wish to understand the peculiarities of this disease. We can make room only for the following extracts.

" This form of disease exhibits no signs of that ticklish mobility which does not sustain the erect posture, or even change of posture without fainting, or manifesting a strong tendency to faint. The patient is ordinarily capable of rising up by himself, and of doing for himself what is necessary to be done; and, this being effected, he often, when not under the stimulus of necessity, falls down upon the bed—lumpish and heavy as a log of wood. When in bed, he lies on his back or side as may be—torpid and indifferent, not feeble and exhausted. There is a disposition to talkativeness in some ; there is silence and apathy in the greater number—forgetfulness and indifference to the objects that are present. If a question be put to the patient, it is generally comprehended distinctly, and the answer returned is generally pertinent in so far as it goes ; but it is seldom finished as it ought to be. In like manner, an act is often commenced and left in the middle, as if the purpose were forgotten before the execution was completed. In short, torpor and apathy pervade the whole movements of the system ; and that to such extent, that powers of strong stimulation only are adequate to the elicitation of effect ; scarcely any powers that can be applied with safety produce an effect such as is desired.

" The duration of the form of yellow fever now under consideration, whether the act be general or locally prominent, varies more or less in time and conditions. Where the head is the principal seat of the morbid act, the course often terminates fatally in twenty-four hours or less, apparently by a direct stroke of the morbid cause upon the organ of life and motion. Where the head is affected, but not affected in the first degree of violence, the course is protracted to the third, often to the fifth, and sometimes to the seventh day, when it terminates fatally, sometimes by convulsion and stupor, oftener by a gradual diminution of vital power indicated by sluggish circulation, and presumptively by stagnation in the larger of the spongy abdominal organs, particularly the liver and spleen :—the effect is conspicuous in these organs after death. This is the more common history of the retrograde and fatal course. . The fatal changes happen at common critical periods; and, where stagnant life resumes a course which leads to health, it is always at one or other of the known critical days, viz. third, fifth, or seventh, that the commencement of the favourable change occurs."—*Jackson.* pp. 79-87.

The appearances after death vary according to the duration of the disease, and the circumstances of the diseased action during its continuance.

" Where the course is rapid, that is, terminated within twenty-four hours, the condition of the brain generally indicates the force of local action, viz. turgidness of blood-vessels, preternatural firmness of the substance of the *encephalon* itself, effusion of water into the ventricles, not unfrequently at the base of the brain and in the *theca* of the spinal marrow. If the course be protracted so as to extend to the fourth, fifth, sixth, seventh day, or later, the liver and spleen are often gorged with black blood so as to be perfectly rotten, and patches of gangrene are often observed at different points in the intestinal canal without marks of preceding inflammation. The diameter of the intestines is sometimes preternaturally contracted, and actual *intro-susceptio* is not uncommon. The cavity of the stomach and intestines ordinarily contains more or less of a black dirty fluid resembling the grounds of coffee, or the juices of the cuttle fish : the inner coat of the stomach and intestines is often loose at different parts,—separated at some, and floating in the fluid. The lungs are filled with black blood on some occasions. The pericardium sometimes contains more of a watery fluid than usual; and the body rarely appears to suffer such diminution in its volume as is customary in most febrile diseases. When the fever ceases, the figure is plump and round, as if there had been a complete restriction on the organs of waste or expenditure during its continuance."—*Jackson*, pp. 87, 88.

The third form of yellow fever, or that which, in the language of Dr Jackson, is manifested chiefly in the vessels or capillaries concerned in the serous secretions, external and internal, was by far the most prevalent and the most formidable in the epidemic of Cadiz and Xerez in 1820. This form of fever assumed considerable variety of appearance at its commencement; but the principal of these varieties appear, according to Dr Jackson, to be referable to one or other of the three following heads.

1. It may commence, like a remittent, with chilliness, succeeded by hot flushings, general heat, headach, increased frequency of arterial pulsation, and terminating in sweating and other phenomena of remission, but without permanent relief to the sufferings of the patient. After twelve hours continuance of this state, the febrile complaints recur, and are terminated in a similar manner by slight perspiration, and with

less relief than before; and after this alternation of paroxysm and remission have continued to the third, or even the fifth day, the usual phenomena of the fever appeared in more distinct characters.

"If the distinction of paroxysm and remission ceased to be discernible on the third, a tinge of lurid yellow, and not unfrequently the ejection from the stomach of a dirty brown or inky black fluid, interspersed with flakes of mucous membrane, made its appearance on the fifth, if not sooner, continued at intervals during the sixth, sometimes ceased abruptly at that time, the disease terminating favourably in some instances, fatally in most. Instead of a favourable or fatal termination at the time stated, the mode of action was sometimes only changed. The disease proceeded with more or less variety of aspect to a critical period, when it again changed its form, or terminated finally—sometimes favourably, sometimes fatally. The termination in health was effected by the gradual evolution of the powers of the circulating system; the termination in death by a species of consumption of the animal juices, giving an appearance of withering analogous to withering in plants from want of rain."—*Jackson*, pp. 89, 90.

2. In the second variety, the disease commenced like a simple or mild remittent, and observed its remittent form for many days. At length the pulse became natural, or less frequent even than in health, the tongue became clean, the feverish thirst disappeared, the appetite returned, and no local uneasiness could be recognised; yet, an observer familiar with this disease could perceive that the actions of health had not been re-established, and that, in the words of our author, they were restrained by the masked operations of a febrile cause.

"The pulse was regular, but without buoyancy in the stroke; the skin was flaccid—without elasticity; the countenance was dull—without animation. A person in this predicament, instead of rising from his bed as he might be reasonably expected to do, became gradually listless, and at last helpless in the extreme; the tongue became red as scarlet—and dry; the skin withered like the leaf of a tree in autumn; the eye and countenance assumed a dusky yellow hue; the current of life declined apace, and the patient sunk more or less rapidly under consumption of the animal juices, or succumbed suddenly as a consequence of congestion in the spongy interior organs. Death was the common issue of the state described; but it also sometimes happened, that, when the tide of life was brought to a point of extreme depression, a cause of new movement was infused into the system, and, reanimating the subject in a manner that is not explicable, carried him from a forlorn and almost helpless condition to his natural condition of health. Such instances were not numerous; but they did occur, particularly among the natives of Andalusia, who, in so far as could be judged from a short sojourn in the province, held faster to life than foreigners or Spaniards of northern latitudes."—*Jackson*, pp. 90, 91.

3. In other instances, the first appearance of yellow fever was manifested by catarrh, or slight feverishness, continuing for two, three, or four days, with listlessness, feebleness, headach, and sleeplessness, but without any obvious symptom of alarming or serious disease. In such circumstances, the morning of the third, fourth, or fifth day, was the time at which the disease generally laid aside its ambiguous character, and appeared in a manner too evident to admit any doubt of its nature. The countenance became flaccid, dingy, and withered, the skin dry, the pulse regular, but "deficient of the buoyant elasticity" which distinguishes a progressive course of action. These signs, indeed, with vomiting of dirty fluid like muddy coffee, or even as black as the juices of the cuttle-fish, denote the point of termination of the progressive, and commencement of the retrograde course of the disease. The ensuing part of the course was rapid, and life was rarely prolonged above twenty-four hours after this change had taken place.

In this form of yellow fever, the primary act seems to be constrictive.

"Impaired, or suspended function, irritation, pain, and irksomeness, result from the presence of unnatural constriction. Changed and irregular action, varied in mode according to the circumstances of the subject at the time, follow the impulses of irritation and pain. The system of serous secretions is considered as the base on which the febrile act moves; but, though this be the ground of the operation, other systems participate, even sometimes act conspicuously in the evolution. The sentient system is universal; and as such it is implicated in all febrile movements, either by expressions of unusual activity or of unusual torpor. The complication gives variety to the form, but does not confound the order of the established law of movement. The distinctive feature of the class continues to predominate throughout."—*Jackson*, pp. 93, 94.

The semeiographic description which follows, is minute and accurate; but, instead of quoting, we refer to it generally, and give the following extracts on the diagnostic characters of the disease, since they comprehend much of its direct history.

"The appearances of the eye and countenance are the surest diagnostic of yellow fever, not only at the commencement, but at all the future stages; they are even the surest prognostic of the event, taken as a general base of prognostic. The eye, after the tumults which belong to invasion are past, sometimes appears muddy and red as if it had been exposed to the smoke of green wood; it is more or less watery, hot and painful, impatient of light, and restrained, as if were, from moving freely in its orbit. It glistens with a peculiar glare, different in expression from the eye which glistens with joy. It things take the retrograde or unfortunate course at an early period, its glances assume a peculiar malignancy of expression, resembling in some manner the glancing of the eye of a cat in a dark room;

sometimes the appearance is bead-like—without animation or meaning. The white ordinarily becomes of a dusky yellow hue after the third day; it is rarely of a jaundiced yellow. The countenance exhibits, as well as the eye, considerable variety of aspect at the commencement and during the progress. It is sometimes agitated and disturbed, sometimes shrunk and contracted, changed in appearance from the natural countenance—even at an early period. As the course advances, the changes become more conspicuous every hour, and more indicative of what is to be the final issue. Animation of countenance, expressing, as may be said, buoyancy of life, marks forward process, and gives promise of a fortunate issue. Constriction, aridity, or withering like blight in plants, mark a tendency to retrograde, and indicate extreme danger.

"The condition of the skin is intimately connected with the condition of the interior coats of the alimentary canal. It is generally dry, often parched. If moist, the moisture is clammy and viscous, partial and insignificant in quantity:—the texture of it is in some manner changed. While dry and constricted, it is dense and compacted, little sensible to the stimulation of blisters, and palpably deficient in buoyancy and activity of life. The lips are for the most part dry, sometimes parched and shrivelled; sometimes pale—bloodless as if through force of constriction. The tongue, another of the important indexes of the febrile condition, is often dry during the period of invasion; it is rarely foul until the distinctive character be formed. It then becomes white—uniformly or in patches. It is sometimes moist, flaccid, and of diminished size; sometimes dry and rough, stiff, hard, and brown—with more or less thirst, though not always with thirst corresponding with the obvious appearances. The foulness, dryness, and hardness of the tongue, sometimes continue until the third. sometimes until the fifth day or later. The dryness and hardness then, for the most part, diminish, and the foulness begins to separate, first at the edges, and finally at the centre. The tongue, besides the appearance now noticed, is sometimes red, smooth, or rough; sometimes moist and flaccid; sometimes puffy, swollen, and livid in the whole, or in part. Where the fever is protracted beyond the seventh day, a change or imperfect crisis is generally observed on or about the seventh, followed at a short interval by a recurrence of suffering in a new or modified form. The tongue, in such cases, becomes not unfrequently scarlet red, sometimes smooth, shining, and glossy; sometimes rough and dry, and in many cases deeply chapped. Blood sometimes exudes from its immediate surface, though the surface is oftener covered with blood which has exuded from the gums. It becomes moist when the fever terminates finally; it even becomes moist where the cessation is temporary at the commencement of a new evolution of febrile movement."—*Jackson*, pp. 97–100.

Sickness, or vomiting, the first and most prominent of the morbid actions, is either synchronous with headach, or rapidly follows it. The headach attacks suddenly, like an electric stroke, and is generally attended, first with extreme anguish of the gastric region, and sickness, afterwards with vomiting of fluid much mixed with bile, but afterwards with flaky substances, which appear to Dr Jackson to be portions of the inner coats of the stomach, but which are perhaps merely mucous matter, slightly coagulated by bile or the gastric fluid. If vomiting does not occur early, which may happen, it is preceded by eructation, and much distress referred to the epigastric region for a day or two, and finally takes place with ejection of dark, coffee-coloured, or sometimes inky fluid, mixed with flaky matter.

" Vomiting of this character is not accompanied with retching and straining. A quantity of fluid is ejected, and there is respite for a time. The quantity again accumulates; and, as troublesome by bulk or weight, it is again ejected. Vomiting of black matter appears not unfrequently on the third day in the fever of Andalusia, disappears on the fourth, reappears on the fifth, sometimes continues throughout the sixth, sometimes ceases entirely, when another form of movement arises which leads imperceptibly to the reestablishment of health, or to death through another mode of febrile action. Besides the occurrence of vomiting of black matter at certain periods in the course of the disease, gulping, or the ejection, by mouthfuls, of clots of blood enveloped in mucous membrane, occurs not unfrequently. Worms—round, and often red in colour as earth worms, are ejected dead, or creep out as it were from the stomach on some occasions." *Jackson*, pp. 101, 102.

These symptoms are attended with distressing eructation, obscure or suppressed hiccup, anguish at stomach, generally with a sense of distention, always with much tenderness and uneasiness, which is augmented by pressure, or the slightest touch.

The derangement in function of the intestinal canal, is manifested by watery stools, without appearance of proper feculent matter, and without relief to the sufferings of the patient. The matters discharged are often similar to those ejected from the stomach. Black, coffee-coloured fluids, without the heat or acrimony of bilious discharges, sometimes like soot mixed with water, generally containing, at least in the advanced stage of the disease, shreds of the villous coat of the intestine, sometimes with hard granulated substance, not unlike grains of glazed gun-powder, are the usual appearances of the matters, which are expelled without griping, or even the usual intestinal actions. In consistence, they may be pultaceous and greasy, or even consisting of pure blood; and, when fetid, they have not the peculiar fetor of feculent stools. The urinary secretion was rarely much affected in the yellow fever of Andalusia. The appearances after death will be understood from the following notice.

"The flesh is flabby and pale; the serous membrane looks withered, and appears often as if it were bleached; the heart is flaccid and diminished in size; the liver and spleen are shrunk and collapsed; the intestines are pale; the great veins are bloodless. The consumption of blood is striking, and sometimes to such extent that it would be impossible to collect two ounces from all the veins in the body. A small portion of filamentous grume is observed, on some occasions, in the interior of the great veins, the internal coat of which is then ordinarily inflamed—red as if it had been varnished: the arteries are often of a dirty straw colour."—*Jackson*, pp. 104, 105.

A second form of this disease, confined more or less to the serous capillaries, and which may be considered a sub-species of the third general division, is described by our author in the following terms.

"The variety, which, instead of occasioning death by exsiccation and withering, terminates rather by a process of dissolution and liquescence, rarely shows any thing peculiar until the third or fourth day, when the countenance assumes a singular and striking appearance. The lips, contrary to what is observed in the form above described, become of a cherry red—moist and smooth; the cheeks of a Circassian bloom, sometimes circumscribed to the cheek bones, sometimes more generally diffused. The eye is peculiar—sometimes glassy and clear, with a ghastly and unpleasant expression; the skin is soft, flaccid, and damp—covered on most occasions with dewy moisture; the fetor from the body is singular, sickly, and faint—not unlike the smell of a fish market: the alvine evacuations are offensive in the extreme, sometimes copious and liquid—not feculent, not even of feculent odour. The symptoms are not violent. The patient sinks gradually into the grave, but he rarely falls into it before the seventh or eighth day.—The case occurred sometimes in Spain in 1820:—the dead body was not opened on that occasion; it has been opened by the author on others similar."—*Jackson*, pp. 105, 106.

Though the three varieties which we have now enumerated constitute the principal or important features of Andalusian fever, it appears that there are others in which there is either a considerable affection of the nervous system, manifested by fits, convulsion, stupor, insensibility like apoplexy, and delirium almost to madness,—in a peculiar tendency to gangrenous inflammation, and the formation of mortified or sphacelated portions of the animal tissues. We do not follow the author in regarding these phenomena as sufficiently important to constitute distinct varieties of the disease. In the first case, the phenomena of diminished, irregular, or abolished sensation and motion, must be regarded as simple indications of a morbid state of the capillary system of the brain and nerves; and, in the second, the general principles and phenomena of pathological actions show evidently, that the formation of gangrenous sloughs is merely a variety of morbid action, depending often on individual or family constitution, sometimes on age, and not unfrequently on improper treatment.

These semeiographical and pathological descriptions are followed by some judicious observations on Type, which he justly admits cannot be explained, at least in regard to yellow fever, in a satisfactory manner. This term, indeed, savours much of hypothesis and mystery; and we rather suspect that, if the circumstances in which it was applied were attentively considered, it would be discovered that the term, in many instances, meant nothing whatever, and, in many more, was used as a veil to cover what was unknown, and, by giving vague or unintelligible explanations, to act as a barrier in the way of inquiry. In delivering this opinion, we wish it to be distinctly understood, that we allude particularly to the indiscriminate use of the term to fevers of the most opposite form,—continued, intermittent, and remittent, and to the most opposite varieties of these fevers. We believe that, in this country, the term has been generally employed to denote the predominant pathological character, as marked by inflammatory, typhous, or nervous symptoms. But as it is now well ascertained, and generally understood, that the predominance of these symptoms depends on particular states of the capillary system of particular organs, or systems of organs, the term "*type*" can be regarded in no other light, at best, than a convenient name for expressing an assemblage of separate objects, or perhaps, more frequently, as part of the nomenclature of a pathological theory, which is found to be erroneous, and which has been long exploded.

If these observations be correctly founded, our readers will not much regret the obscurity in which Dr Jackson admits the type of yellow fever to be involved; and they will perhaps agree with us in thinking that the subject might have been omitted entirely. His chief object in the observations which he has delivered appears to be, to determine whether the motions observed in the febrile process of this disease, be referable to the head of remission and remitting fever, or are to be believed as of a distinct and peculiar character. In this inquiry, any one who peruses his accurate history of the various forms which the fever assumes, will instantly perceive that he would meet with insurmountable obstacles, and irreconcileable difficulties; and Dr Jackson, we find, has formed no general conclusions, and has left the matter in the same obscurity in which he found it.

The recapitulation which is contained between pages 112 and 120 we pass over, but not without recommending it to the notice of those who wish to acquire a clear idea of the various forms of Andalusian fever, without entering into the minute details and inquiries of Dr Jackson. It contains a succinct but luminous exposition of the chief semeiographical and pathological characters of this disease, and will enable any one with moderate attention to recognise it when met with.

The descriptive details which we have here abridged, or extracted from our author, will enable our readers to form some idea of the course of this disease, and of its probable mode of termination. The circumstances from which a prognosis may be formed of the issue of the disease, are examined with much care and minuteness by Dr Jackson; and the general result of his observations leads to the conclusion, that the various phenomena of any case or set of cases may be either favourable, equivocal, dangerous or fatal. These, it is to be presumed, may be easily distinguished, by means of the information already communicated; and we shall not, therefore, consume time in more particular notice of them. We may however remark, that according to the observations of our author, the disease is more violent and more fatal in the persons of strangers than in those of the natives,—more so in the persons of Spaniards from other provinces, than in those of Andalusians;—and in the robust and athletic, than in the puny, thin, and delicate. Yet this is not consentaneous with what Dr O'Halloran informs us, the physicians of Barcelona observed, in the epidemic yellow fever which prevailed there in 1821,—that scarcely an individual escaped an attack who laboured under venereal or chronic disease; and that persons of this description were at once more susceptible and more speedily destroyed than those in health. * The worst or most violent forms of the disease terminate in general before the fifth day, sometimes on the third or fourth; but in almost all cases, the state of symptoms on the fifth day is to be regarded as indicative of the issue, favourable or fatal. If the retrograde course appears on the third, life terminates in general on the fifth; if unfavourable symptoms appear on the fifth, death takes place on the sixth; but if the progressive course of the disease goes on to the seventh, which can only take place when the fever is mild, or the treatment energetic, a temporary pause of morbid events takes place, and a new train of symptoms ensues. In such circumstances, these continue sometimes so late as the fourteenth day, when termination takes place, either favourable or fatal;—or the morbid process continues for a third septenary period, when it either declines suddenly or gradually, or leaves the patient in a state

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* Remarks, p. 98.

of extreme exhaustion and alarming feebleness. If he passes over this, recovery and convalescence at length succeed.

The origin and nature of the febrile disease, the characters of which we have here placed before our readers, have given rise to much controversy and discussion within the last twenty years; and, although it cannot be said that either have been so profitable or instructive to the parties concerned, or so beneficial to the community as a benevolent mind would wish, the inquiries to which the controversy has led, have nevertheless contributed to diffuse more correct and rational ideas than had formerly prevailed in the country. The gross ignorance and superstition of the great mass of Spanish population, are sufficiently well known; and there is no doubt that these defects are so considerable and so general, that it is hardly possible to calumniate the character of the Spaniards in these respects. It may be indeed remarked, that this unfortunate character ought not, and cannot, apply to the medical practitioners of the country; but, independent of the trifling influence which the leaven of so small a number of persons can exercise, in a numerous, superstitious, and uneducated population, the facility with which the human mind, even when well trained and considerably liberalized, accommodates itself to the qualities of contiguous objects, and gradually loses any original energy which it possessed, in the numbing intercourse of a semibarbarous community, is so great, that it would be absurd to expect conspicuous benefit from a cause of so trifling and limited operation. It accordingly appears, that with few exceptions indeed, the Spanish physicians either adopt the current notions on the nature and origin of the country yellow fever, or at least give themselves exceedingly little trouble in inquiring into the circumstances under which it appears, and the causes which favour its production or propagation. We learn, from various sources, that previous to the arrival of Dr Jackson in the Peninsula, the Spanish physicians very generally ascribed the yellow fever to contagion, and considered it, in all cases, as imported in the persons or clothes of human beings, from one or other of the unhealthy stations of the American or West Indian coast. At present, however, as we are told by Dr O'Halloran, this uniformity of medical creed is by no means to be observed; and the physicians and the enlightened part of the people are much divided in opinion as to the contagious origin and nature of the disease, which desolates their towns and cities. This favourable change, in the opinion of the profession and of the public, Dr O'Halloran ascribes to the arrival of Dr Jackson in Xerez, which appears to have been the first circumstance that suggested to them the possibility of the disease not being derived from contagion, or imported into the country, and to have first led them to direct their attention to the circumstances of its appearance and propagation, and to the evidence necessary to establish its contagious origin. Still, however, there is a strong proneness to the easy belief of contagion; and almost all the public authorities, both political and medical, preponderate decidedly to this side of the question, and actually set barriers to all inquiry, by declaring the disease to be in all circumstances highly contagious. Of the truth of this, many proofs might be given; but we confine our present notice to the following details. In the year 1800, this disease appeared in various parts of Andalusia. Seville, Cadiz, Xerez de la Frontera, Puerto de Santa Maria, Chiclana, and the Isla de Leon, were either simultaneously or successively scenes of the ravages of an irresistible epidemic. In consequence of an application from the City-Council (*Ayuntamiento*) of Cadiz to the Medical School of Montpellier, a commission, consisting of three physicians, Fouquet, Barthez and Berthe,* with a suitable number of secretaries and interpreters, was, by the authority of the civil government of France, appointed to investigate the nature and causes of the disease, and to give a proper report. The conclusion to which this learned body came, was, that the Andalusian disease was the yellow fever of the American coasts, was eminently contagious, had been introduced into the country, and was propagated only in the manner of a contagious disease. The same opinions were entertained and publicly expressed by Dr Arejula, who was the superintendant of health for the south of Spain, and who has ever been considered a great medical authority, both by the civil powers and by most of his brethren. After 1800, whenever the disease appeared, as at Medina Sidonia in 1801, Malaga in 1803 and 1804, Antiquera, Rambla, Montilla and Ronda in 1804, and at Cadiz in 1810 and 1813, it was uniformly considered contagious, and the usual means of preventing propagation were employed. The same sentiments are delivered by the members of the Health Commission, appointed to report on the disease of Barcelona in 1821, who, in their official lettter to the Political Chief of Catalonia, express themselves in the following decided terms:

"Yes, Sir, in our conception, the yellow fever of Barcelona is contagious; and the conviction is confirmed by what has happened at Tortosa, where it has been propagated by communication as at Barcelona; by the same means it has passed to Mahon and Marseilles, where cutting off the communication arrested its progress and extinguished its activity." And again—"No, we are not afraid to add, that the yellow fever of Barcelona is contagious to a greater degree than we have hitherto seen in any other epidemic disease of a similar nature, which always happens when a contagious disease attacks a city for the first time."—*O'Halloran*, p. 43.

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* Neither Fouquet nor Barthez, who were both old and infirm, attempted this duty.—*Precis Historique de la Maladie qu'a regné dans l'Andalausie en* 1800. Par J. N. Berthe.

In the same manner, the Junta of Physicians, and the Medico-Chirurgical Junta, or Society of Cadiz, (la Sociedad Medico-Quirurgica de Cadiz), the Junta of Physicians at Malaga and at Antiquera, and the Supreme Junta of Minorca, have recently stated their opinion to the Cortes, that the disease is eminently contagious.

These opinions on the origin and nature of the disease, are completely contradicted by the researches of Drs Jackson and O'Halloran, both of whom ascribe its ravages to causes inherent in the physical qualities of the soil and atmosphere, and to the habits and modes of life peculiar to the Spaniards. The ideas of Dr Jackson on contagion, are thus delivered.

"Contagious propagation is intelligible as connected with contact, or very near approach to the infected subject: it is ambiguous where contact is not direct, or near to direct. The subject is masked occasionally and not easily comprehended. Certain inexplicable conditions in the atmosphere facilitate the propagation of contagious diseases among the community: others are indifferent, as neither directly facilitating nor opposing; and some may be considered as negative, in as much as a disease inherently contagious does not spread, or spreads only in a very limited manner, and reluctantly as it were, under the implied condition. The fact is obvious: the efficient cause is unknown: the ultimate cause is the preservation of the human race from extinction under the occurrence of a mortal contagious malady. Propagation is not ambiguous as effected by direct contact: it is doubtful where the subject and agent are distant from each other."—*Jackson*, pp. 26, 27.

He afterwards, in a very luminous recapitulation (p. 86), examines the influence of the individual causes to which the supposed introduction and propagation of yellow fever have been ascribed, and shows distinctly, that it is impossible to allow to any of them any influence in the production of the disease. Importation, he contends, which was never probable, or supported by satisfactory evidence, was completely disproved by the manner in which the disease appeared at Cadiz and Xerez de la Frontera in 1820. Personal contagion, or communication of the disease by connexion with those who are or have been sick, appears to Dr J. to be admitted on evidence equally imperfect; and against it he quotes the following strong fact.

"An event, similar to what happened at Xeres in 1800, happened at St Lucar in 1819. The persons who had been employed to bury the dead at that place, committed depredations and other irregularities in the houses where the dead lay. The friars of a Franciscan convent, struck with the indecency of the proceedings of the buriers, made an offer to the Junta de Sanidad, or health police, professing their willingness to charge themselves with the office of interment which was then so flagrantly abused. The offer was accepted; and the friars, in entering on the duty which they had thus imposed upon themselves, found the majority of the houses or sick apartments deserted, the bodies of the dead lying in various postures upon beds, or on the floor. They wrapped them in sheets, or such other covering as presented itself in the apartment, carried them to the bier in their arms, and afterwards in the bier on their shoulders to the grave. No one of this meritorious band was attacked by the disease, although five of them were supposed to be susceptible of it as not having had it at a former time."—*Jackson*, pp. 38, 39.

Dr J. is therefore led to conclude, that the sudden appearance and rapid diffusion of the disease can be explained on the principle of epidemic atmospheres only; and that the disease will not be communicated, unless the air of the locality be favourable; an inference which is much strengthened by the fact of persons secluding themselves, and avoiding sedulously all communication with the sick, being affected nearly in the same proportion as those who use no precautions.

"The facts now stated, appear to be sufficiently decisive in proof of the opinion, that the yellow fever of Andalusia is not a disease personally contagious, and that it does not spread or extend itself in common atmospheres. It arises without proof of contact with the infected; and it does not multiply itself by a generative process within the system, as small-pox, measles, and the disease known by the name of typhus fever, evidently do. Propagation from person to person, by an act of the system, is not here substantiated by evidence where the case is rigidly scrutinized. But, though this be in itself an incontrovertible fact, things may notwithstanding be so brought together by the concurrence of contingent causes, as to impose upon the common observer a deceptious feature, foreign to the real nature of the disease. The case may perhaps be thus explained. The yellow fever, during the reign of epidemic influence, often strikes like a pestilence by the mere concourse of people in a close place; and, if a mass of sick persons be collected into an hospital during the epidemic season, the common emanations from the sick bodies, whether saturated with contagious particles or not, often act offensively on those who enter the circle, and often appear to be the cause of the explosion of a disease which, without such accessory or changed condition of the medium in which man lives, would have probably remained dormant for a time, and perhaps for ever. The instances of persons who have lived in apparent good health in simple epidemic atmospheres, and who have become sick soon after they entered into the circle of a crowded assembly, or the crowded wards of an hospital of sick, are numerous, and so well marked, that they stagger, on a superficial view, the opinion here contended for of the noncontagious nature of the yellow fever."—*Jackson*, pp. 43, 44.

The same views are stated, perhaps, at greater length, and more fully, by Dr O'Halloran, in his 3d chapter, which is entitled, "General Observations on Contagion." The facts on which this author founds his inferences, are derived from the phenomena observed in the epidemic of Barcelona, and are as strong and conclusive as it is possible to obtain. In this city there are three institutions, the House of Charity, the House of Pity, (Casa Misericordia), and the House of Correction, each of which always contains a considerable number of individuals, who nevertheless were very little, if at all affected, during the prevalence of the epidemic. Of 1100 persons, men, women, boys and girls, residing in the first of these institutions during the rage of the epidemic, and walking through the healthy part of the city daily, only two persons appear to have been attacked with fever, one of whom died. Of 150 girls and 24 men, in the second of these establishments, who were in daily and indiscriminate communication with the inhabitants, none suffered or was affected. And of 100 females in the House of Correction, only 9 were attacked by the disease, four of whom had been admitted from a sickly district of Barcelona, for committing some irregularity. The whole nine were removed to the Seminario Hospital, in which four died; and though the other five returned to the House, and communicated freely with the other inmates, no disease ensued. The same conclusions, Dr O'Halloran shows, may be derived from the circumstances of the General and the Seminario Hospitals during the epidemic, in neither of which was the sickness communicated with certainty from the diseased to the attendants.

"It is unnecessary to multiply examples. Some hundreds may be produced to prove the noncontagious nature of the malady, more particularly in the country within the cordon, where the population was immense, owing to the emigrations from the city. I shall, however, briefly observe, that the course of the malady from north-east to south-west, the different degrees of force attending its action in the course of its movements, its unusual destruction at what may be called the focus, during the whole of its continuance, the irregularity of its proceedings, jumping from point to point, and leaving intermediate places untouched; the diminished degrees of violence by which it was characterized as it proceeded towards the westward; its fatal and malignant nature in ill-ventilated places; the exemption of parts of the city from its influence, where no precautions were taken; the sickening of persons who observed the strictest seclusion; the sudden impression of contaminated air on persons recently from the country, without communication with the inhabitants of the city, the greater exemption of nurses and other attendants on the sick from the disease, than those who were simply exposed to the contaminated air of sickly houses; the almost absolute exemption of washers of bedding, clothes, &c., which had recently been used by the sick; the circumstance of the attendants in the hospitals and lazarettos having generally escaped the impression of the malady; the impossibility of diffusing the disease in the country, where no epidemic cause existed; and, finally, the deaths of some hundreds of persons who communicated with Barcelona, and who sickened in the neighbouring villages and country houses, without a solitary instance of its affecting the most assiduous of the attendants, however circumstanced, are ascertained facts, and convincing proofs of the non-contagious nature of the yellow fever."—*O'Halloran*, pp. 100, 101.

We regard, indeed, the point of non-contagion in the Andalusian or Spanish-Coast fever, to be as firmly and incontrovertibly established by the facts adduced by our authors, as it is possible to render any question of this description, where so many sources of fallacy contribute to embarrass the inquiry, and obscure the truth. As this conclusion completely annihilates the question of its foreign origin, and importation, the only possible source to which the fever can be ascribed, is that of the physical qualities of the soil and atmosphere; and it is accordingly to the local peculiarities of the towns of Andalusia, and the Spanish south-east coast in general, that our authors ascribe the formation and ravages of this disease. If, indeed, the topographical character of the towns in which this disease has most frequently appeared, and which have suffered most severely from its ravages, be considered, it will not be deemed by any means absurd, or even improbable, that its formation depends on causes of local operation only. *First*, It never appears before the end of July or the beginning of August, and it begins to abate in violence in October, and has never been observed to continue till November or December. *Secondly*, Its presence has been generally preceded by an unusual state of the atmosphere, and by many phenomena both in the animal and vegetable world, which are not common, and which undoubtedly indicate * a state of air not cognizable by the senses, or even instruments, but exercising a remarkable influence on the actions and functions of living beings. *Thirdly*, It prevails not merely in maritime towns and situations, where its presence *might* be ascribed to foreign importation,—but appears also in inland places, as at Medina-Sidonia, Xerez de la Frontera, so early, and in such peculiar circumstances, that it cannot be traced to importation. *Fourthly*, It has prevailed, in different degrees of violence, along the whole line of coast, from the foot of the Pyrenees in the east, to the mouth of the Guadiana in the west. While, however, it has been very general and fatal in Barcelona, Tortosa, Carthagena, Malaga, Puerto de Santa Maria, Xerez, Lebrixa, Seville, San Lucar, and Cadiz, most of which are either filthy or badly ventilated, or otherwise favourably situate for the operation of epidemic influence, it has been little, or scarcely known, at least of late years, in Tarragona, Valencia, Puerto Real, and other towns more fortunate in their situation, or more careful and punctual in the observance of those rules which are necessary to secure the health of communities of human beings during the autumnal season in warm climates.

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* O'Halloran, pp. 24, 25, 26.

It does not appear, however, that, in order to account for this epidemic sickliness, it is requisite to look for marshy or swampy districts, or those processes of decomposition which are known to take place in such situations. On this point neither of our authors express themselves with much distinctness or certainty; and, like most other inquirers of epidemic diseases, we rather think they have occasionally met with difficulty in searching for this very generally admitted cause of fatal fevers. Many causes have led us to think, that though marshy situations are undoubtedly insalubrious, they are not the sole causes of epidemic disease;—and the physician must be prepared to fear and to obviate the progress of febrile maladies, in many situations where neither marsh, nor stagnant water, nor putrefactive decomposition can be recognised. It has been long known, that there is no spot in the world, perhaps, more harassed with agues of bad form, and with other very dangerous and fatal diseases, than the rocky island of Minorca; yet it is not always possible to ascribe these fevers to the air of marshes, which indeed are rare in the island. The formation of diseases of this character appears to depend rather on the same causes which are connected with vigorous and rank growth of plants and vegetable bodies in general, than on the trifling effect which the local impurities of a town, even populous, could be supposed to produce. This, with the prevalence of weather of a particular kind, or rather a peculiar state of the atmosphere, is perhaps the true and essential cause on which the formation and propagation of febrile epidemics depend. The other circumstances may have an influence; but it seems to be rather accessory than essential, since they are in constant operation; and yet the effect only takes place at particular periods. The subject, however, has not been accurately investigated. It is difficult to submit it to exact researches; and so many circumstances contribute to modify or obscure the result of the observations hitherto made, that we have still to desiderate that direct and palpable evidence, which alone ought to be regarded conclusive. These observations, however, we throw out as mere hints or suggestions for those whose oportunities enable them to examine their actual merit. We regret that we cannot boast of much personal observation; and, if we could, this is not the place to indulge it.

We have spent so much time in the views which we have already given of the researches of our authors, that it is scarcely proper for us to try the patience of our readers with any further observations. We cannot, however, shut the valuable work of Dr O'Halloran, without adverting to the information which his dissections communicate.

" There are two points, particularly, in the foregoing dissections, which claim the attention of the reader. They unequivocally prove the highly inflammatory nature of the malady, and the cause of its unusual destruction. I believe that the internal state of the eye has rarely been the subject of *post mortem* researches; and as I am of opinion, that its contents are more or less deranged by the effects of inflammation, when that organ is the seat of pain, accompanied with external redness, I also think that the discovery is important, as proving to a demonstration the almost utter impossibility of removing the disease without the rigorous employment of the lancet, and other means of depletion.

" The state of the kidney, next to that of the eye, claims our attention. It is the general opinion, that this viscus is not liable to suffer from inflammation and its consequences in the yellow fever, even where suppression of urine is a fatal and prominent symptom for days. I have seen more than two hundred dissections, but I do not recollect having seen the kidney examined minutely; a single incision through the pelvis satisfied the examiner, who pronounced it healthy. In all the *post mortem* examinations which took place previous to my arrival at Barcelona, if I can credit the report of persons who assisted at them, little attention was paid to the kidney,— a single cut and no more. In my four first dissections I was equally careless with regard to its state, having been informed, that in no one instance did it exhibit marks of disease, although suppression of urine was a prominent symptom in almost all the fatal cases. In the case of Maria Gouch, I accidentally discovered abscesses: the existence of abscesses in the papillæ of the kidneys led to the examination of the ureters, which also contained pus. I cannot say that abscesses of the kidneys are common in the yellow fever of Andalusia, having only performed a few dissections there; but, as the symptoms of the disease in Barcelona (where I am disposed to think, from what I witnessed, that abscesses of the kidneys were common) bore considerable analogy to the inflammatory form of the Andalusian fever, I am inclined to believe that the same appearances exist, and will be found on dissection; and as it is a most important point, as connected with the treatment, to ascertain whether or not the suppression of urine arises from inflammation of the kidneys and its consequences, I must take the liberty of calling the particular attention of anatomists to this important subject. Every atom of the viscus ought to be examined; the abscesses are extremely small, and difficultly discovered. The liver, in most cases, exhibited unequivocal marks of recent disease, more so than I before witnessed. The *post mortem* examination of subjects who die of the yellow fever, should take place as soon as possible; for the different organs, viscera, &c., more particularly those that have recently suffered from diseased action, undergo changes in a few hours, so as to become brown, black, and apparently gangrened, while the appearances of other parts that were comparatively healthy, are also changed after a given time. I am disposed to think, that if the body be not examined in five hours after death, little information can be obtained of the actual state; and that this, in a great measure, accounts for the extensive gangrenous appearances which anatomists have described, and which, in my opinion, rarely take place during life as the effect of disease; but as the vitality of parts, upon which a prominent morbid action exercises its injurious influence, is more or less in a state of debility from the effects of inflammation, when dissolution takes place, they more readily undergo changes, and assume gangrenous appearances, than healthy parts. This may be proved by exposing the abdominal contents as soon as possible after death. Then the changes are evident; for the parts which have suffered from recent disease change colour, and become black in a very short time, whilst those that have sustained no injury, retain the natural colour for a much longer period."—*O'Halloran*, pp. 200–203.

The Ninth chapter of Dr Jackson's work consists of two sections;—one on the Spanish modes of treating yellow fever; the other containing the exposition of the method adopted by the author. It is almost needless to say of the comparative merits of these methods, that the treatment adopted by the Spanish physicians cannot be expected to make any impression on a violent disease; and that the practice suggested and employed by Dr Jackson, presents a much fairer prospect of moderating its force, and bringing it to a favourable termination. The curative indications are simple, but the means of effecting them are complicated, and we refer to the work for details.

The observations on the law of quarantine, with which the work is concluded, flow as necessary corollaries from the researches made on the nature and origin of the disease. They are interesting, judicious, and rational; and we trust, that the circumstance of their being written in a temperate tone, will recommend them to the serious attention of those who watch over our commercial interests in the Mediterranean. The views which Dr Jackson takes of the origin of fever, endemic and contagious, and of what is termed the *epidemic constitution* of the atmosphere, are at once original and instructive, and cannot be too generally known. We recommend their particular study to those medical officers to whose care the health of numerous bodies of men are intrusted; and we doubt not that, if the principles which he unfolds were more intimately and generally known to those invested with authority, whether civil or military, they would mainly contribute to diffuse correct notions on the subject of public health, and would frequently prevent much confusion, much error, and much waste of human life. We have indeed rarely met, in the course of our critical labours, with so many rational and moderate suggestions, supported as they are by extensive experience, and correct observation.

## II.

*Medical Jurisprudence.* By J. A. Paris, M. D. &c. and J. S. M. Fonblanque, Barrister at Law. In 3 vols. 8vo. London, &c. 1823.

Although, during the last twenty years, the study of Medical Jurisprudence has been frequently recommended, by the periodical press, to the attention of British practitioners, and its importance is now generally acknowledged by the most enlightened authorities in medicine, it is a painful, and, at first view, an unaccountable fact, that the knowledge of it is still confined to a few individuals, who have been led to its pursuit by particular private considerations; and that the great bulk of the profession, though sensible of its value, still continue to disregard it. It is singular, that this science should have so long existed on the Continent, as a distinct and indispensable branch of medical education, and yet in Britain—distinguished for the patronage she extends to all other sciences—it is neither recommended by the rules of colleges and corporations, nor voluntarily pursued by the student.

The neglect in which it has been held, appears to arise partly from the peculiar spirit and constitution of British law. The hostility manifested against innovation has prevented the accomplishment of those changes in the forms of justice, which are requisite to impart to Medical Jurisprudence its due influence on the administration of the laws, and its just value in the eyes of the public, and more particularly of the medical profession. Besides, in one entire and vast department—that of criminal law—it must not be concealed, that medico-legal inquiries are less important, and less frequently called for here, than upon the Continent. The heinousness of crimes against the person is estimated as much by the intent with which they are committed, as by the consequences that result to the individual. This, though a leading feature in the criminal law of every nation, is more peculiarly the character of that of England and Scotland. The intention is a much more important element to establish, than the precise result. In England the intention alone often constitutes the crime. Thus, wounding, with intent to kill, whatever be the event, is punished with death; and the giving of drugs, with the intent of procuring abortion, comes under the recent statute against that crime, although the drugs did not cause miscarriage, although they could not cause it, nay, even although the female was not pregnant. The same spirit, which led to the enactment of these English statutes, regulates the administration of the criminal law in Scotland. For example, in all charges of homicide, provided preconceived malice be fairly established, our courts seem very easily satisfied of the connexion between the injury received, and the fatal event that succeeds. At least it is certain, that pleas of exculpation, on the ground of circumstances having modified the effects of the injury, are much fewer in number, and much less easily received here, than in some continental kingdoms. This any one may be convinced of, by comparing the daily decisions of our courts of justice with the collection of German decisions published in the seventeenth century by Paul Ammann. Two consequences flow from what has just been stated. In the first place, many medico-legal inquiries are excluded, especially in England, which would find a place on similar trials abroad; and secondly, many others are apt to be undervalued, or even overlooked, because too undivided attention is paid to the prisoner's motive or intent. Such, probably, are the reasons why this science has not yet received its due share of the public notice.

Its neglect by the medical profession in particular is promoted by other causes also. A knowledge of it is not *immediately* connected with their professional fame; it is still excluded from the course of study prescribed by our universities and colleges; and it is only within a few years, that an opportunity has been afforded of studying it in the English language. But especially, a vast number have been withheld from commencing its study, on account of several incorrect, though very prevalent notions as to its nature, and the mode in which it must be pursued. On the one hand, some have thought, that an adequate knowledge of it may be picked up during the ordinary course of medical studies: to which it is sufficient to reply, that no one has yet acquired it in this manner. Many, on the other hand, imagine, that these previous studies bear little or no relation to it; that its object is not to apply the grand facts and general laws so ascertained, but rather to point out the exceptions to which they are liable;—that Medical Jurisprudence, in short, is wholly occupied with the rarities and wonders in medicine. This error has clearly arisen from the abstruse and extraneous nature of the few medico-legal inquiries that have made a noise in this country, and from the little regard hitherto paid to those equally important, and of daily occurrence, which lie within the ordinary limits of the profession. A third very prevalent notion, which appears to be on the increase, and which, we fear, the work before us will tend to diffuse, is, that the student must be acquainted with law as well as medicine. It is certainly proper, that every one commencing the study of Medical Jurisprudence should know what questions in law may give origin to medical investigations, and likewise, perhaps, what influence these investigations will be allowed in our courts. But this is all: and any one may easily acquire such information without the express study of the law. The medical jurist, indeed, who would desire to point out the changes in the statutes, required by the late rapid progress of the medical sciences, must make himself familiar with those departments of law in which a reformation appears to him advisable. But no such knowledge is necessary to the student, who merely wishes to qualify himself for his ordinary medico-legal duties. The last and most fatal error we shall notice, is, an idea that Medical Jurisprudence cannot be regarded as an exact science —that its doctrines are vague and fluctuating, and therefore inapplicable to practice. We have known some professional persons so thoroughly imbued with these conceptions, as to maintain, that scarcely any question whatever could be started, on which opposite opinions might not be got from men of respectability, deciding upon oath. Unfortunately, the conduct of several eminent individuals, on some recent trials, has afforded too fair a pretext for these misconceptions. It might be easily shown, however, that the appearances they have made, have arisen either from their ignorance of the mode of conducting judicial inquiries; or from their opinions having been contradicted in court by men ignorant, self-confident, and unprincipled; or from their having attempted to act the part of counsel, instead of behaving as mere witnesses; or, finally, from the medical facts brought under review having proved less exact and less stable than had been generally believed. Now, none of these accidents can be justly ascribed to defects in the science itself; and the last circumstance, (which has been so ostentatiously held forth to show its inexactness and instability), would naturally lead a reflecting mind to conclusions precisely the reverse; namely, that, of all the medical sciences, this is the most precise and exact; and that it would be fortunate for medicine, if the purity of its doctrines could be always tried by the touchstone of Medical Jurisprudence. The theories of medicine would not have been so proverbially baseless, if they had been surveyed with the same minuteness and caution with which medical inquiries at law must be conducted; and we cannot help thinking, that the diffusion of this new branch of knowledge is well calculated to check the growing credulity, the exuberant empiricism, and the habits of hasty induction, which characterize the works of many modern authors in our profession.

We may expect, however, that the illusions which have hitherto obstructed its progress, will be soon dispelled, since the English student has now an opportunity of instructing himself at all our chief seminaries, and of referring to several ingenious works on the subject in his own language. In 1788, Dr Farre wrote a small and imperfect treatise, which excited but little notice. In 1815, another essay, even more meagre, was composed by Dr Bartley of Bristol; and next year, Dr Male published a third treatise, more complete and more scientific, yet still a mere epitome. The "*Principles of Forensic Medicine*," published, in 1821, by Dr Gordon Smith, was the first English work which could be resorted to for minute and precise information; and it has justly met with considerable success. But the treatise we have now to examine, is better fitted, in many respects, to excite the attention both of medical men and of the public in general. It is written in a more classical and attractive style than most medical works. It embraces the subject throughout all its remotest branches. It is interspersed with objects of curiosity to catch the attention of the general reader, while it handles ably and minutely the more essential topics of pure science. It abounds in allusions to interesting cases decided in the English courts; and, upon the whole, perhaps no work yet exists, in which the precision of medical inquiries at law is more forcibly instilled by precept, or more beautifully illustrated by example. Thus much we are called on to express at the outset regarding its general character and probable usefulness, lest the course adopted in the subsequent strictures should be misconstrued. Our attention will be turned chiefly to the defects of the work, both in its particular details, and as a systematic treatise,—defects which, every one must conceive, are almost inseparable from an early attempt to systematize a new science. In choosing this course, we have no other motives than the impossibility of analyzing so vast a work to advantage, and chiefly the desire to point out what subjects require to be reconsidered by the authors, or to be investigated by the scientific in general.

The definition they give of their subject differs widely from its present conventional meaning, yet without rendering the name either more obvious in its import, or more logically applicable. Medical Jurisprudence, according to them, is "the science by which medicine and its collateral branches are made subservient to the construction, elucidation, and administration of the laws, and to the preservation of the public health." The term, as used heretofore, does not include the subject of the last clause, to which the name of Medical Police has been appropriately given. We question whether they have been judicious, either in deviating so much from a signification unphilosophical perhaps, yet now generally acknowledged, or in introducing the subject of Medical Police into their work at all.

The subject is divided into three parts, "the *first*, comprehending the enumeration of the different medical corporations, with an account of their charters, powers, and privileges, together with the subject of Medical Police: the *second*, all those subjects connected with Medical Evidence, as applicable to civil and ecclesiastical suits, in which the order of the subject corresponds with that of the progress of human life, from infancy to old age: the *third*, the inquiries which are necessary to Medical Evidence, as applicable to criminal cases." p. xl.

The *first Part* may, in shorter terms, be defined Medical Police; for an account of the charters and privileges of the different medical corporations is a part, and but a subordinate part, of that science. Under this head, they treat of the Colleges of Physicians and Surgeons, and the Society of Apothecaries;—of the exemptions and civil suits of medical practitioners; of midwifery; of the preservation of the public health; of quarantine, lazarettos, and other establishments against contagion; of medical police! and the bills of mortality. It is difficult to account for the perplexing jumble of titles here intermingled. After using the term *Medical Police* generically, it is here introduced again in a specific sense, and likewise as differing from the *Preservation of the Public Health*, which is really nothing more than its synonyme, or rather its object. In a science of new creation it surely ought not to be a difficult matter to construct a more precise nomenclature.

The only subject of medical police, which has been considered in detail, is the one, perhaps, which might have been most easily spared, namely, the Constitution of the College of Physicians of London. To the members of that body it is doubtless very gratifying to learn, that it is now more than three centuries old; that its censors may exercise the power of fining and *imprisoning* its enemies; that it has uniformly come off victorious from the *numerous* actions it has maintained with interlopers, and with its own licentiates; and that, in matters regarding the public health, it ought to be accounted " the *only legitimate source* from which the Government is to derive its information, and the public their protection." But few readers besides will thank the authors for 54 pages of text and 70 of appendix on a point of so little general interest, more especially as the other topics of medical police, of far greater importance, have been either very slightly noticed, or even omitted altogether. The subject as it stands, is profoundly investigated, and in a tone of apparent meekness and moderation. Yet we confess they often appear to us to pourtray too successfully the arrogance and monopolizing spirit of the Royal College, to exult beyond forbearance in its dangerous powers and fancied distinction, and certainly to form a very exaggerated, overweening and exclusive conception of its national importance. We have already mentioned, that the College consider themselves the only legitimate advisers in matters regarding the public health of the kingdom. This is ridiculous enough. Yet we are afterwards told in an eloquent paragraph, (which, without doubt, will convey the most flattering unction to the soul of every Fellow), that the existence of the entire medical profession depends on the well-being of the London College of Physicians. " To the College of Physicians, as it regards the whole profession of physic, we may address the same emphatic words that Cicero applied to Torquatus, with reference to the state, *Tibi nullum periculum esse perspicio, quod* *quidem sejunctum sit ab omnium interitu!"* To justify all this bombast, and the idolatrous respect here claimed for his college, we should beg to ask Dr Paris, what distinguished actions they have done during the last twenty years, in behalf either of the public health, or of the profession of medicine?

The following information as to the terms of entrance into that body may not be unacceptable to our readers. Any physician of the age of 26 (we believe) may become Licentiate upon undergoing the usual examinations. But to entitle a Licentiate to claim the rank of Fellow, he must be a Doctor of Cambridge, Oxford, or Dublin. The doctors of the other Universities, however, are also sometimes admitted under one or other of the following by-laws. In the first place, the President every other year, may propose one Licentiate of *ten years* standing, who, without examination, may be admitted a Fellow by consent of a majority, first, of the *comitia minora*, and afterwards of the *comitia majora*. And secondly, any Fellow at the comitia majora may propose any Licentiate of seven years standing, and 36 years of age, to be examined by the President and Censors; and if a majority consent, and the examiners afterwards approve, he may be admitted by a majority of the next comitia. Hence, as a Doctor's degree is attainable in England in twelve years, it follows, that an English graduate may become a Fellow about the age of 27,—any other physician not till near the age of 37. That is—supposing the College impartial—the former, when just commencing his career, receives the title as a recommendation; while the latter, after attaining celebrity, receives it as a reward,—a most obvious and equitable distinction truly, and (as our authors hint) equally dictated by a tender concern for the public good, and a due liberality towards the various seminaries of medical education.

The history of the College of Physicians is succeeded by a shorter account of the College of Surgeons, of the Society of Apothecaries, and of the practice of midwifery; of the exemptions and liabilities of medical practitioners, and of the actions which may be maintained by them for the recovery of fees, or by their patients against them for mismanagement.

The subject of the Preservation of the Public Health, (a term which they use with a most undefinable import), is next discussed in very brief terms. They have very justly suggested the propriety of extending to Britain the Act passed in 1819 for the prevention of contagious diseases in Ireland. By this act, Officers of Health are directed to be chosen annually by the vestries or Justices of Peace, for the purpose of suppressing and preventing contagion by the fumigation of infected houses, and by cleansing all public places, as well as all houses let in tenements. We cannot help wondering, that the eyes of our legislators were not opened by the late alarming epidemic to the necessity of extending some measure of the kind to England and Scotland. For, notwithstanding "the habits of order and cleanliness for which the inhabitants of this island are celebrated," we could easily show, from the experience of Edinburgh alone, the inadequacy of these habits under the want of a proper municipal code: And yet, on account of its local situation, the large proportion of its wealthier inhabitants, and their watchfulness over the well-being of the poor, no city of equal extent is so little exposed to suffer from contagion. The authors likewise hint at the impolicy of assenting to those moral notions that have prevented the enactment of police regulations for suppresing "the disease which poisons human life at its source." The advantages of such rules, however, appear to us so nearly counterbalanced by their disadvantages, that we may venture to predict they will not soon interest our legislators. This subject, the preservation of the public health, is dismissed with some desultory, but interesting remarks on the burial of the dead in cities. The authors have adopted the prevalent notion among medical men, that cemeteries in the midst of a city are detrimental to the health of its inhabitants. These notions must be admitted under certain restrictions. Cemeteries may be detrimental by their vicinity to springs, or by too great an accumulation of bodies giving rise to swelling of the soil, or offensive exhalations. But if the number of burials is kept within proper bounds, cemeteries, so far from being injurious, will actually prove beneficial to the healthiness of cities, in consequence of the space left unoccupied by buildings. Very dangerous and fatal effects have certainly arisen from the sudden exposure of masses of putrifying animal matter; but we are acquainted with no facts, which prove that the same matter, while decaying gradually under ground, may cause similar effects, and still less occasion epidemic fevers, as some have conjectured.

We are next presented with an account of the Quarantine Laws, and of the modern doctrines respecting the contagious nature of some epidemic diseases. Our authors are strenuous contagionists. They believe in the contagion of plague; and with regard to domestic fever, they remark, that although it may arise from other causes besides infection, such as fatigue, unwholsome food, personal filth, and corrupted human effluvia, yet all these varieties may propagate themselves by infection, under peculiar states of the atmosphere, or other favourable circumstances. This is certainly the safer opinion in reference to the preservation of the public health. But the facts hitherto advanced in support of it are very far from being satisfactory, and do not warrant the strong expressions, which the authors have made use of.

Under the title of Medical Police, they have taken a short view of the Examination of drugs in London, by the Censors of the College of Physicians; the Irish Health Act; and the Bills of Mortality. The examination of druggists' shops, as conducted in the metropolis by the Censors of the College, might, with great propriety, be extended to the whole empire. At present no check whatever exists any where else over the carelessness and impositions to which those who practise this lucrative trade are irresistibly tempted. The charter of the Edinburgh College, indeed, instructs its President and Censors, in company with a magistrate, a surgeon, and an apothecary, to make an occasional survey of the shops in this city, and to destroy all decayed and insufficient drugs. But the right has not been exercised for a long period; much difficulty would be encountered in reviving it; and it does not even seem to be sufficiently established by the terms of the charter.

The Second Part of the work includes "all subjects connected with Medical Evidence in Civil and Ecclesiastical Suits."

The arrangement of these subjects is exceedingly loose and artificial; a circumstance, however, which is to be attributed rather to their heterogeneous nature, than to any fault in the authors. After some introductory remarks on medical evidence, they proceed to treat of Marriage and Divorce, and the numerous questions regarding them, which may derive illustration from Physiology. They next consider the important subject of Insanity; then that of Nuisances; then of Impositions, including the Simulation of Diseases and the Adulteration of Food; next Insurance upon Lives; and lastly, Survivorship. Under each of the foregoing heads, they first enumerate the doctrines of the law with regard to them, and then the physiological researches which may illustrate these doctrines or the various questions arising out of them.

The Introductory Essay on Medical Evidence appears to us meagre. After some general observations on its importance, and the critical posture in which a witness is often placed, they lay down the law as to the obligation on medical practitioners to give evidence, the kind of evidence expected from them, and the necessity under which they lie of divulging secrets intrusted to them professionally. The authors take occasion to regret the law allows so paltry a remuneration for the attendance of medical gentlemen upon criminal trials; which, they justly remark, is one great reason why this branch of professional duty is left almost entirely to the very lowest order of practitioners. It would have been desirable that the subject of Medical Evidence had been more minutely investigated; for, as we observed on a recent occasion, its nature appears to be very little understood even by our Courts. In the *first* place, who ought to be admitted to give evidence? The present practice is to receive all who are connected with medicine, however remotely, not only physicians, surgeons, and apothecaries, but hospital dressers, students, and quack-doctors. We could point out a case of poisoning, where the most essential part of the evidence depended on the testimony of a quack alone; and it was admitted. This unwarrantable degree of confidence would certainly require some restriction. We are satisfied that the ends of justice would be much more safely fulfilled without any medical evidence at all, than with such as is daily delivered by unqualified witnesses in the English Courts. *Secondly*, Ought a medical witness to confine himself to the results of his own experience? Many of the Judges have maintained, that he must; but the matter is by no means so fixed as they seem to believe; for we could mention more than one instance, where their predecessors admitted the evidence of printed works; nay, even that of living practitioners delivered at second-hand. We beg to call the particular attention of our authors, and especially of Mr Fonblanque, to these circumstances. The practice of the English Judges in excluding a reference to authors, evidently arises from the principle in law, that nothing is evidence which is not delivered upon oath. Can any one, however, be so foolish as to imagine that an oath would be more binding on an author in science, than the solemn paction of sincerity, which he tacitly makes with his brethren and the world, by the very act of publication? Would the authority of Paris and Fonblanque's work be a whit more respectable, if they had sworn to its truth before the Twelve Judges of England? And is it not manifest, that if the exclusion was made to operate systematically, it must inevitably end in excluding medical and scientific evidence altogether? For scientific inquiries at law can rarely be any thing else than a tissue of references to written authorities. Of what use would be all the personal experience of any physician, unless he knew, by referring to that of his predecessors, the conclusions he is entitled to draw from it?

We may likewise mention two other inquiries relative to medical evidence, which might have been deserving of notice in so comprehensive a work as that now before us. Thus, what effect should manifest ignorance, as to some points, have on the whole testimony of a witness? Continental writers allege, that his whole evidence should go for nothing. The spirit of British law, we apprehend, as well as the common sense of mankind, would admit his facts, but reject his opinion. Again, should a witness be examined, in matters of opinion, upon the import of individual facts? We notice this question, merely to put medical gentlemen on their guard against a very common practice, (especially with English counsel), of endeavouring to extract opinions on detached points of evidence in succession, and of shunning all inquiry as to the import of the whole collectively. The consequence of such attempts may be easily conceived. In a vast proportion of cases,—for example, in all questions of insanity, infanticide, and poisoning, the witness may be made to express the very opposite of his real opinion.

The first section of Part Second comprehends the subjects of Marriage, Divorce, and the Legitimacy of children, together with the relative physiological inquiries. Under this head, the authors first offer some remarks on the statutes concerning the mental and bodily powers which qualify for contracting marriage, and the defects which form a just ground for annulling it. They then give a concise, accurate, and classical description of the changes the human body undergoes in the progress of life, adopting the old division into seven ages—infancy, boyhood, puberty, youth, manhood, old age, and decrepitude. They treat next of impotence and sterility. The causes of impotence are considered as organic, functional, and moral; those of sterility as organic and functional; and both as either absolute or relative. All these topics are examined with considerable care, and in sufficient detail. But they are of very little importance in the present day; for as long as the manners and feelings of society in England continue as they now stand, suits for nullity of marriage, on the plea of impotence or sterility, must be exceedingly rare. The legitimacy of children is then discussed in a few sentences; in the course of which, they show, that the practice of the English courts on this point has been somewhat fluctuating; and that the foolish good-natured rule, "*præsumitur pro patre quem nuptiæ demonstrant,*" now admits of more exceptions than the absence of the husband *beyond the four seas.* A short Appendix then follows on supposititious children, on the law of *Tenant by the Courtesey*, and on monsters. The legitimacy of a child, alleged to be supposititious, may be proved by family likeness; at least Lord Mansfield thought this a material proof in the famous Douglas cause. But it may be questioned, who are qualified witnesses as to family resemblance? for people are apt to form a conception of likenesses on very different and very insecure grounds. Dr Paris and Mr Fonblanque suggest, that a painter or sculptor is the most competent, and, next to them, a physician or a surgeon. We are not aware what can secure a medical man against the illusions which deceive mankind in general.

The physiological illustrations of the foregoing subjects consist, *first*, Of an inquiry into the phenomena of Conception and Utero-gestation. *2dly*, An examination of all questions relative to Parturition; such as the Duration of Pregnancy and of the Child-bearing period, Superfœtation, Plurality of Births, the Causes of Premature Labour, and the propriety of inducing it, the signs of recent or remote Delivery, the possibility of unconscious Delivery. *3dly*, A short notice on Extra-uterine Conception; and, *4thly*, A dissertation on Hermaphrodites. On these much-disputed topics, they have delivered opinions conformable with the doctrines of modern physiology, and with the general sense of the medical profession. At the same time, the grounds of their opinions are impartially and convincingly explained; the processes for determining questions in practice succinctly, fully, and accurately detailed; and such a history is annexed of the sentiments of authors on all matters of controversy, as will enable the reader to investigate minutely any points which may appear to him doubtful.

The second section of the illustrations of Civil and Ecclesiastical Law treats of Insanity and Lunatic asylums. It is to be regretted, that Dr Paris and his coadjutor have not taken advantage of so excellent an opportunity to fix the nomenclature of this branch of their subject, and to adjust the usage of the terms at present employed in one sense by physicians, and in another by our courts of law. The words insanity, lunacy, unsound mind, imbecility, are employed under very different acceptations by lawyers, physicians, and medical writers; and, in consequence, witnesses have often seemed to differ widely from each other in their evidence, when, in fact, the chief difference betwixt them consisted in the meaning that each attached to the vague and unscientific terms sanctioned by the practice of the courts. These inconveniences have been abundantly felt on many recent occasions, and appear, in particular, to have been the origin of the chief difficulties experienced in the late Portsmouth cause. In defence of our medical brethren, and in justification of the awkward appearances they have made, we may safely maintain, that the source of confusion does not lie with them. This has been clearly shown, we think, in a letter, addressed a few months ago by Dr Haslam to the Lord

Chancellor, on account of certain opinions lately expressed by his Lordship, with regard to the different states of mind which may justify the issuing of a commission of lunacy. His Lordship seems to hold that there are three such states, Idiocy, Lunacy, and Unsoundness of mind. The meaning of the term Idiocy can never be mistaken. The word Lunacy has also a definite meaning, different from that in which it was originally used, and now comprehending all those who have been once sound in mind, and who still possess the power of reasoning, though on imaginary or false principles. But as to the term Unsoundness of mind, as contradistinguised from lunacy on the one hand, and from idiocy on the other, we confess, that, like Dr Haslam, we are unable to form a clear conception of it. "Whatever," says the Chancellor, "may be the degree of weakness or imbecility of the party to manage his own affairs, if the finding of the jury is only that he was of an extreme imbecility of mind, that he has an inability to manage his own affairs: if they will not proceed to infer from *that*, in their finding upon oath, that he is of unsound mind, they have not established, by the result of their inquiry, a case on which the Chancellor can make a grant, constituting a committee, either of the person or estate. All the cases decide that mere imbecility will not do; that an inability to manage a man's affairs will not do, unless that inability, and that incapacity to manage his affairs amount to evidence that he is of unsound mind, and he must be found to be so."—(Haslam's Letter, &c. p. 8.) On carefully considering these expressions, we imagine this *unsoundness of mind* to be nothing else, in strict language, than *imbecility, amounting to an inability to manage one's affairs;* a state which is precisely a minor degree of idiocy, and need not be distinguished from it except as a mere variety.

Our readers must rest satisfied with a simple enumeration of the heads of the treatise which our authors have given on Insanity. They first notice the laws relative to the issuing of a commission of lunacy, to the mode of appeal, to the forms by which a lunatic, on recovery, may regain his rights, and to the administration of lunatic asylums. They then illustrate these topics by a medical and physiological inquiry into the nature of idiocy, whether congenital or acquired; and of insanity, which they use as equivalent to the law term lunacy, including the *mania* and *melancholia* of nosologists. And, lastly, they consider the different questions that a medical witness may be required to answer in cases of alleged insanity. As to the merits of this whole dissertation, we have nothing to say in addition to what has already been expressed of the work in general. We may venture to hint, however, that on more occasions than one, the authors have contributed to increase the inconveniencies just complained of, by deviating from the received meaning of certain common terms. We allude particularly to their definitions of the words Mania and Melancholia, which are used according to their vulgar signification, not under their nosological meaning, as given by Cullen, and almost all recent medical authors.

The subject of Nuisances, legally, medically, and chemically considered, forms the third section of Part Second. It is discussed so succinctly that even an outline is impossible. We may remark, however, that it properly constitutes a part, not of medical jurisprudence, but of medical police, and would be better noticed there under the head of the Influence of Trade on the Health.

The fourth section, which treats of Impositions, and includes Feigned Diseases, and the Adulteration of Food, likewise contains so much matter condensed into so small a space, that we cannot pretend to analyze it. The diseases noticed are, Insanity, Somnolency, Fainting, Epilepsy, Hysteria, Shaking-Palsy, Fever, Dropsy, Jaundice, Hæmatemesis, Hæmaturia, Incontinence of Urine, Gravel, Alvine Concretions, Abstinence, Deafness, Dumbness, Blindness, Ophthalmia, Hernia, Prolapsus Ani, Ulcers. Under each of these heads, the authors have given short, but very excellent instructions on the mode of detecting imposition. The list might have been considerably extended. Under the head of Abstinence, they allude briefly to one of the most remarkable instances of the culpable and fatal neglect of medical evidence which the records of this country can furnish. It is the story of a servant girl, Elizabeth Canning, who, in 1753, procured the capital conviction of an old woman for robbing and starving her, and was afterwards herself tried and convicted of perjury. We may safely aver, that a case is hardly to be found, in which a fair medical investigation could have furnished so decided evidence, and so pointed a denial of the accuser's charge; and we are sorry, on this account, that our authors have noticed it so slightly, and omitted its most striking and instructive particulars. The girl swore, that the prisoner and another woman, after the robbery, shut her up in a hay-loft, and starved her, because she refused to "go their way;" and that, after twenty-eight days confinement, she leaped from a window six feet above the ground, and walked home, a distance of twelve miles; that her only subsistence during her imprisonment was a single quartern loaf, with one gallon of water; and that she did not finish the loaf till the 25th day, and drank the last of the water not till the morning of her escape. Three circumstances in this story were impossible; any physician acquainted with the phenomena of famine might have shown, that a young girl, in good health, and possessing an excellent appetite, (as was the case with Canning), could never have walked twelve miles after a month of such starvation; that she could much less have kept any of her loaf till the 25th day; and, above all, that it was impossible a single gallon of liquid could have lasted her four weeks. Except the melancholy death of Calas, which happened nine years afterwards at Thoulouse, we know not a more memorable instance of the baneful effects of sudden prejudice, popular clamour, and careless investigation. The Adulteration of Food, which the authors introduce under the head of Impositions, is properly a part of medical police. The account they have given is partial and meagre, their attention having been confined to Bread, Milk, and Beer, and even these noticed very briefly.

The very important subject of Life Insurances constitutes the fifth section, and is discussed in six pages. They have confined their remarks chiefly to the statutes enacted against fraudulent policies. A full treatise on the relations of Medicine to Insurance contracts is still a desideratum in medical jurisprudence; and it is rather singular that the subject has not yet been investigated, considering the vast capital which is invested in the Insurance Companies. Perhaps, however, such an inquiry would not be for the interest of the partners of these companies. It is well known that some of them have been long drawing most enormous profits—a fact, which can hardly be reconciled with the flattering professions they hold out to the public. The causes of their success, (so far as medical inquiry might enlighten the subject), seem to be, in the *first* place, that the probability of life was, at the outset, underrated, and that little allowance has been made for its increasing improvement; *secondly*, that while the mortality is taken from the average of all lives, good and bad, a premium is required for all bad lives, many such are refused altogether, and no drawback is allowed upon a vast majority of insurances, in which the life is better than the average; and, *thirdly*, that the tendency of many diseases to shorten life has been much overrated. It is this last point chiefly which requires to be illustrated by medical investigation; but, we fear, too many difficulties lie in the way; and especially, that there is an almost total want of facts on which to found precise enough conclusions.

The last subject relating to civil law, is Survivorship. When several persons, related to each other, have been cut off by some common calamity, it is sometimes necessary to learn which of them survived longest, for the purpose of settling the succession to their property. This subject has been considered of great importance by foreign authors; and Fodéré has devoted seventy pages of his work to settling the order of death under various circumstances. The present work contains a short, but very interesting treatise on it. We believe, however, that physiology can rarely throw any light upon such questions; at least, except in the case of death by famine, it can only lead to presumptive evidence, which will not be allowed much weight in the total absence of other proof. All the questions of this nature which have occurred in English courts, have been settled by compromise, on the recommendation of the Bench.

The Third part of the work includes all Injuries preparatory to medical evidence in Criminal law. These injuries are by far the most important to the medical profession, whether in regard to their frequency and diversity, or the stake which is involved in them, or the value and influence of professional evidence.

1. *Arson.* Under this head, Dr Paris and Mr Fonblanque examine the curious subject of spontaneous combustion. They first notice the spontaneous inflammation of mineral, vegetable, and animal substances, by friction, fermentation, and chemical action. Inquiries at law, involving the consideration of these phenomena, require the aid of the chemist, not of the physician, and appear unnecessarily introduced here. They next allude briefly to the supposed cases of spontaneous combustion of the living human body. They follow other writers on Medical Jurisprudence, in denying the propriety of the term Spontaneous Combustion, as applied to the phenomena in question; and seem even to doubt that the body may become preternaturally inflammable. For our own part, we distrust altogether the few cases, in which the body is said to have taken fire spontaneously; * but as to the occurrence of a preternatural combustibility, through means of which the body, when once inflamed, will continue to supply fuel for its own combustion till it is almost or entirely consumed, however contrary the phenomenon may be to preconceived notions, we cannot conceive any dispassionate inquirer, who will reject the mass of evidence now collected in support of it, without also rejecting human testimony altogether. The authors have mentioned the chief reasons for crediting the accounts handed down to us; but they have forgot to mention some of the most convincing circumstances. Thus, cases have occurred in many different countries,—in Germany, France, Italy, and England; they have happened in the most modern times, long after the age of superstition had passed a-

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[a] See the Foreign Intelligence of our present Number.

way; and many of them are established on the authority of judicial proceedings, aided by medical investigation.

2. *Rape.* This subject has occasioned considerable difficulty to most medico-legal authors, partly from the want of decisive criterions to determine the credibility of accusations, and partly from the circumstances, which are held requisite by our Courts to constitute the crime. The latter point has been placed in a clear light by our authors. They show, that, while the law has laudably endeavoured to throw obstacles in the way of malicious prosecutions, on a charge so easily made, and so difficultly repelled, it has in consequence required a kind of proof, which must often be wanting in the most palpable and atrocious cases. How female children of 9, 10, or even 12 years of age, should be aware of the *emissio seminis* (which is held indispensable to constitute the crime of rape), it is not very easy to conceive. Medical evidence, in charges of rape, will differ materially in its force, according to the age and previous life of the accuser. When she has not reached puberty, the physician's evidence will generally alone decide the question; for with respect to such persons, the crime is constituted by simple defloration; and, notwithstanding all that has been said by some sceptical doctors, the signs of defloration in females so young, can never be mistaken, if the examiner act with due precaution. But in all other cases, medical evidence will seldom be of material use, except when one or other, or both of the parties happen to be affected with the venereal disease. After all, however, medical evidence, in cases of rape, is much oftener improperly neglected, than unnecessarily resorted to. If, instead of allowing the female to make the charge after any interval, however long, and thus excluding professional examination from a great multitude of cases, our Legislature was to revive, with some change, the old law, which required her to lodge information, and submit to be examined, within a short and fixed period, we should possess a much more effectual check against malicious prosecutions, than can ever be established by the difficulties at present existing.

3. *Homicide.* 4. *Real and apparent Death.* After mentioning, in brief terms, a few of the best authenticated instances of persons apparently dead, who have revived in their coffins, in the tomb, and under the knife of the anatomist, Dr Paris and his coadjutor express their disbelief that these have been really cases of suspended animation, or that suspended animation is even possible. "We feel no hesitation in asserting, that it is physiologically impossible for a human being to remain more than a few minutes in such a state of asphyxia, as not to betray

some sign by which a medical observer can at once recognise the existence of vitality; for if the respiration be only suspended for a short interval, we may conclude that life has fled for ever." (II. 10). There is probably much justice in their allegation, that the premature interment and hasty dissection of such persons often arose from carelessness on the part of the attendants, and that the signs of real death can never be mistaken by a skilful and cautious physician. But it is, perhaps, rash to affirm, that if the breathing be suspended for a short interval (five minutes), life must always be irrecoverably extinguished. Such may be the fact with regard to man and the perfect animals in all ordinary circumstances, under which the matter can be subjected to experiment. But our present knowledge of the living functions, and their phenomena in the healthy and diseased state, scarcely authorizes an extension of this inference to the system when altered by long disease. At all events, the manifest danger of such an inference, if unsound, naturally suggests the necessity of some caution and hesitation in denying a generally received doctrine, even though apparently in contradiction with modern physiology. Influenced by the views thus taken of suspended animation, the authors think that real death may always be recognised, by observing whether any motion is visible in the chest or belly when laid bare. The accuracy, or rather the delicacy of this criterion, may be doubted, and that upon other grounds besides what have just been stated. A much better test is one they notice afterwards, the supervention of *cadaverous rigidity, after an interval of relaxation.*

5. *The Physical Causes and Phenomena of sudden Death.* This treatise, which serves as an introduction to the succeeding chapters on the varieties of violent death, is an excellent abridgment of the researches of Bichat, Legallois, Brodie, and Wilson Philip on the vital functions. We must here call the attention of the authors to two oversights they have committed. It is said (II. 20.), that "the brain is immediately necessary to life, only because the muscles of respiration owe their action to its influence." We apprehend. the well-known effects of dividing the eighth pair of nerves, are sufficient to prove that the brain serves some other important office, or offices, essentially necessary to life. Again, at page 23, speaking of Legallois's celebrated experiment of annihilating the heart's action by destroying the spinal marrow with a stilet, and his conclusion, that the heart depends for its vitality on this part of the nervous system, they show, that the conclusion is incompatible with the fact of fœtuses having reached maturity without the spine; and they offer the conjecture, that the phenomenon witnessed

by Legallois arose from the shock produced by the injury, not by the simple loss of the spine. Is Dr Paris not aware, that what they have thus thrown out as a conjecture, was long ago established by Dr W. Philip on the clearest experimental evidence?

6. *Syncope*, or cessation of the heart's action. Its most common cause is hemorrhage; and then the heart and great vessels are found, after death, almost empty of blood. When it arises from any other cause, as passions of the mind, sympathy with injuries of other organs, or the action of poisons, the heart is distended with blood, which in the left cavities is much more florid than in the right. Do passions of the mind really cause death by syncope? We are acquainted with no proof that they do, except when the heart is ruptured; and many of the cases supposed to be of this nature, clearly arise from apoplexy. The authors have arranged, under the head of Death by Syncope, the singular cases described by Mr Chevalier (in the first volume of the Medico-Chirurgical Transactions), of sudden death occurring particularly in pregnant women, taking place apparently after a fit of prolonged fainting, and indicated in the dead body by complete emptiness and flaccidity of the heart. It is evident, that such a state of the organ cannot arise from paralysis, as in all other examples of syncope. Does it depend on spasm? Are we to arrange under this head the numerous cases of sudden, or even instantaneous death, without rupture, during organic diseases of the heart, indicated by few or no previous symptoms? This singular and common accident, of which no notice is taken in the work before us, requires explanation. So far as we have searched, the state of the heart, in relation to the immediate cause of death, has not yet been attended to in any published case of the kind. The following remark, deduced especially from the frequent experience of toxicologists, is an important one in relation to the possibility of rousing the heart to contract after its action has ceased. "Where the heart has ceased to pulsate, in consequence of the cessation of respiration, it can never again be set in motion; but where it has stopped from other causes, as from the operation of certain poisons, its muscular irritability not having been exhausted, its action may be occasionally revived." (II. 26.) We shall soon find a striking application of this rule to the treatment of asphyxia.

7. *Suffocation*, or stoppage of the breathing from violent causes, including death by Drowning, Strangling, Hanging, Smothering, and Noxious Exhalations. In all these varieties of death, the heart survives the respiration, black blood is conse-

quently circulated through the system, and causes death by poisoning the organs of the essential functions. According to Mr Brodie, an interval of 5′ is sufficient in all cases for the cessation of the heart's contractions, and the total extinction of life. The remarks which follow, on the different modes of causing death by suffocation, appear to us the most incomplete and inaccurate in the work. This is exceedingly unfortunate; for the whole subject, in its medico-legal relations, is at present very little understood by the profession at large. On many recent occasions, medical witnesses have completely failed in their inquiries upon questions relative to strangulation, suspension, and more especially drowning; a fact which need not be wondered at, since no good treatise on these subjects exists in the English language.

The chief sources of difficulty in such investigations are, that the appearances in the bodies of persons cut off in these ways have been imperfectly ascertained; that they differ remarkably in different cases; and that the circumstances under which they may be expected are almost unknown. Thus, after death by drowning, the face is sometimes bloated, livid, and distorted; the belly swelled, the back and limbs blue, the blood fluid, a watery froth fills the trachea and bronchi, and the stomach contains water; but at other times, no water is found in the stomach, no froth in the air-passages, the countenance is pallid, composed, and not bloated, and the whole appearance of the body is completely natural. In 1790, Desgranges of Lyons * asserted, that the signs of venous turgescence described above, occur in those only who struggle much in the water, rise frequently to the surface, and die a lingering death; and that, when nothing unusual is observed in the body, the person has been suddenly stupified on falling into the water, never rose to the surface, and died immediately without struggling. The former he termed *asphyxie avec matière par engouement*, the latter *asphyxie syncopale.* His views were afterwards adopted by Professor Marc of Paris, †, and more recently confirmed by Fodéré. ‡ We may add, that to us they appear highly probable, and in a medico-legal point of view so important, that we cannot imagine why they have been altogether neglected by our authors.

But this investigation might be carried a step farther, so as to explain the discrepant appearances observed after other kinds of death by asphyxia. Our authors remark, that, after death by hanging, the face, and especially the lips and nose, are dark, the countenance distorted, the eyes protruded and injected, the tongue thrust out betwixt the teeth, the fingers crooked, the nails blue, the whole physiognomy highly characteristic, and the brain, lungs, and right side of the heart, gorged with black blood, (II. 45.) They should have added, however, that very often none of all these changes take place; that the body, outwardly and inwardly, may not differ from its natural state. And this is a most important fact; for many are in the custom of inferring, from the absence of the signs in question, that the body has been suspended not till after death. To what are these discrepancies to be ascribed? Dr Esquirol of Paris, in a recent Memoir, of which a short account was given in our last Foreign Intelligence, attributed them to the period during which the rope has been left round the neck; but this explanation is insufficient. We believe the true cause may be shown to be rather the more or less complete exclusion of the air. When the exclusion is complete and sudden, the body will present no unusual appearance; but, when it is incomplete and gradual, so that the person lives for some time in a state of agony, then the signs of venous turgescence are every where remarkable. We have not space at present for unfolding fully this explanation; but it is supported by the statements already made as to drowning; and the reader will find some farther confirmation of it in Bichat's work *Sur la Vie et la Mort*, (p. 211.) Our authors have pointed out, on the authority of Mr Brodie (*Manuscript Lectures before the College of Surgeons*), a new cause of death after suspension. They observe, that in every case of perfect hanging death arises purely from obstructed respiration; but that other injuries are also produced, in consequence of which, though the access of air be restored, the person may nevertheless die. These are pressure on the vessels, fracture and dislocation of the spine, and pressure on the 8th pair of nerves. Mr Brodie found, that on passing a tight ligature round the neck, not comprehending the trachea, and removing it in fifteen minutes, the animal died within twenty-four hours, with all the phenomena which are produced by division of the pneumo-gastric nerves. We presume the authors might have added to the list of accidents produced by hanging, concussion of the brain.

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* *Mémoire sur les moyens de perfectionner le traitement des Noyés,* we believe, is the title of his treatise.

† *Manuel d'Autopsie Cadavérique.*

‡ *Médecine-Legale*, II. 296. III. 85.

They have affirmed, and so has Dr Gordon Smith, that the signs of death by suffocation are very indistinct, when it has been caused by strangling. This we venture to dispute. In all the cases we have seen recorded, the blackness and distortion of the face are said to have been very great; a fact which accords with what has been said of the effects of imperfect exclusion of the air; for it is almost impossible to obstruct it suddenly and completely by any of the ordinary modes of strangling. Under the head of Hanging and Strangling, they have unaccountably omitted the marks upon or around the neck among the appearances in the dead body. These marks, in general, furnish a much simpler and less equivocal criterion of the kind of death, than can be drawn from the condition of the rest of the body.

In treating of Suffocation by Noxious Exhalations, they have considered carbonic acid, confined air, the fumes of charcoal, and those of a smoking candle-wick, as causing death simply by the deficiency of oxygen. The mode of action of carbonic acid gas is still a matter of doubt, though we thoroughly believe it will be proved, ere long, to be a positive poison, and a powerful narcotic. But it cannot be questioned, that the fumes of charcoal and smoking candles are directly poisonous; since they consist in a great measure of carburetted hydrogen, the baneful influence of which has been completely proved by Sir H. Davy and others.

The authors conclude the subject of death by Suffocation with a few interesting remarks on some other causes not strictly comprehended under the heads of drowning, hanging, &c.; namely, by paralysis of the respiratory muscles, by compression of the chest, by doubling back the tongue, by sudden inflammation of the glottis, and by the entrance of foreign bodies into the trachea. They appear to us to have improperly considered, as examples of death by suffocation, those in which, after a fit of apoplexy, epilepsy, or intoxication, part of the contents of the stomach are found in the pharynx and trachea,—having been vomited up, as they think, during the paroxysm. In almost every case of the kind, we apprehend the alimentary matters have been pressed up after death.

8. Death by *Cold*, *Heat*, *Lightning*, and *Starvation*. The information hitherto possessed on these subjects is neither very extensive nor very precise; and Paris and Fonblanque appear to have bestowed little attention in collecting what is known. The operation of Cold has not yet been satisfactorily investigated. Mr Brodie thinks it exhausts the principle of life uniformly throughout every part of the body. Yet both his experiments and those of Dr Chossat prove, that the heart is the first vital organ whose function ceases. These are matters of much physiological interest, but of little importance in a medico-legal point of view, as cases of death from cold are always easily recognised by the circumstances under which they hap-

pen. Heat, not so excessive as to burn, seems to kill sometimes by causing apoplexy; at other times, according to Mr Brodie's experiments, by suspending the action of the heart. The effects of Lightning are of some consequence to the medical jurist, since death from this cause is frequent, and may be confounded with the effects of other violence. Our authors therefore might safely have been more full and precise on the subject. They have given a short account of John Hunter's views, and of some recent experiments of Mr Brodie on the mode in which electricity kills, but finally leave the subject enveloped in as much difficulty as ever; and they take no notice of the remarkable appearances left in the dead body, although these must be the chief object of attention to the physician in his medico-legal capacity. The phenomena of Starvation are very well related, as they occurred in the melancholy case of Viterbi, lately published in the Medical and Physical Journal. We may refer our readers to another very striking case in the 43d volume of the same Journal, and to another in the Dictionnaire des Sciences Médicales, article *Suicide*. By far the most instructive case we have read, however, is that of a Prussian soldier, (Hufeland's Journal, vol. x.), who, being convicted of cutting off his fore-finger to disable himself for service, resolved to escape punishment by starving himself to death. At first he abstained from food and drink entirely for twenty-two days, but was then persuaded to abandon his resolution. A month afterwards, however, he resumed it, and, after taking a little wine, gruel and biscuit for eleven days, refused all sustenance for the next four weeks. At this time he was again persuaded to take a little food for two days; but after that he would take nothing; and he adhered to his resolution *for seven weeks longer*, when he died. To the history is added an excellent account of the dissection of the body. In the work before us, no notice is taken of the appearances left in the dead body by starvation. The whole subject is one of some importance in relation to legal medicine; for starving has sometimes been resorted to as the means of committing murder; and, even in England, it has been often charged as the cause of death, in conjunction with other ill treatment.

9. *The application of the physiological facts established in the preceding chapters to the general treatment of asphyxia.* This inquiry, which properly belongs to medical police, and is of vital importance to the establishment of Humane Societies, has justly claimed a large share of our authors' attention; and they have advanced several new views on the subject, chiefly derived from the unpublished lectures of Mr Brodie, delivered before

the College of Surgeons. In those cases of asphyxia, in which the heart ceases to act before the breathing, the treatment, according to Mr Brodie, may be restricted to the application of external heat, and the use of stimulants. Frictions, which have been employed with the view of promoting the circulation, he holds to be useless; and artificial inflation can afford no assistance, for the left side of the heart always contains florid blood. Our authors add, that, as the heart is in the same state after death from cold, "the directions of the Humane Society to inflate the lungs in such cases are founded in error." These remarks on artificial respiration appear to us highly dangerous, and perhaps not altogether free from error. We believe, that when the heart's action has ceased before the respiration (as in some kinds of poisoning), it may be renewed by a sudden inflation of the lungs; and, at all events, this process will prove the best stimulus to it in many cases, in which, though to an ordinary observer it appears to have ceased, it nevertheless beats languidly. When the breathing has been suspended before the heart ceased to act, artificial respiration will prolong its action; but, according to Mr Brodie, *when the action of the heart has ceased after the suspension of the breathing, or even has become so feeble as no longer to maintain the circulation, it can never be restored by artificially inflating the lungs.* This doctrine, our authors observe, is evidently contradictory to the existing ideas regarding suspended animation, and particularly with the cases published in the Reports of the Humane Society. For Mr Brodie found, that the heart ceased to act five minutes at the farthest after the exclusion of air from the lungs; and yet the Society's Reports contain cases of recovery after immersion in water for fifteen minutes, half an hour, and upwards. Dr Paris and Mr Fonblanque therefore deny the accuracy of these cases, compare them to the ancient stories of the Tritons and Nereïds, and endeavour to account for them by insisting, either that the reporters must have miscalculated the time, or that the persons had breathed obscurely. The world, however, will be cautious in assenting to opinions of such practical tendency; since, if correct, the inevitable consequence must be, *that no means will be employed to resuscitate the drowned, after five minutes of complete submersion.* It appears to us, that the Humame Society's cases may be accounted for in two ways, besides that which Dr Paris has chosen. In the first place, we have certainly observed in strangled dogs, that although the heart ceases to act in three or four minutes, a slight stimulus applied directly to it will cause the most powerful contractions, thirteen or even fifteen minutes afterwards. May it not therefore be possible to restore animation during this period by the combined use of stimulants and artificial inflation? The very brief account our authors have given of Mr Brodie's experiments does not supply an answer to this question. But, secondly, it is not improbable that in the variety of drowning, which Desgranges has called *Asphyxie Syncopale*, the action of the heart is suspended at the same time with the respiration, and consequently may be restored after a considerable interval, since the heart itself, as well as the other vital organs, is not poisoned by black blood. It is some confirmation of this conjecture, that, according to the experience of every observer, the chance of recovery is greatest when the person has not struggled, or breathed occasionally at the surface of the water.

The remaining observations on the mode of applying the various remedies for asphyxia are not susceptible of analysis. The employment of tobacco clysters is justly discarded, and the utility of galvanism and electricity altogether denied. The advantage of blood-letting is also denied, except after hanging, because it may then relieve congestion in the head. We conceive that the loss of a small quantity of blood may be of use even in reference to the asphyxia itself; for in animals the heart is certainly often roused again to action, when the vessels near it are partially emptied.

10. *Of the Coroner's Inquest.* 11. *Of Suicide.* These two chapters are purely law discussions, and might have been omitted.

12. *Of Murder generally.* This chapter contains a very unphilosophical arrangement, adopted from Sir Matthew Hales, of the several ways of killing, and likewise a few excellent remarks on death by duress of imprisonment.

*Of Murder by Wounding or Blows.* The effects of wounds and blows afford much less scope for medico-legal discussion in our country than in most of the Continental kingdoms. In British law, we have already observed, by far the most essential constituent in the crime of murder, is the intent with which the attack was made; and when the intent is proved to have been malicious, and death shortly follows, the courts, perhaps with reason, seem not very anxious to prove the dependence of the event absolutely and exclusively on the injury inflicted; at least pleas of exculpation, on account of modifying circumstances, are received with great unwillingness; and hence are not often urged by the accused. Yet it may be doubted whether English authors are on that account justified in neglecting so much this department of legal medicine; because pleas of the kind are nevertheless sometimes maintained, and very nice questions may undoubtedly arise from them, which nothing but medical evidence can determine. In the present work, the authors have limited themselves to some good illustrations of the different kinds of wounds.

13. *Of Murder by Poisoning.* This, the most difficult and important subject in medical jurisprudence, is also the most complete, and by far the most valuable and interesting part of Dr Paris and Mr Fonblanque's work. In many of the details, however, we conceive they have fallen into error; and, on several points, their information appears much more defective than it might have been. As we propose to scrutinize this chapter more minutely than the rest, we must reserve its consideration till a future opportunity. At present, we shall merely offer a few strictures on the Classification which they have adopted, and which Dr Paris thinks superior to any yet published. It is constructed according to the physiological action of the poisons, which, he correctly observes, is the only basis of arrangement that can be of service to the pathologist.

I. Poisons acting through the nerves, without being absorbed, or causing local inflammation: 1. By destroying the functions of the nervous system. 2. By paralyzing the heart.

II. Poisons which act through absorption on the heart, brain, or alimentary canal. 1. Corrosives. 2. Acrids. 3. Narcotics. 4. Narcotico-acrids.

III. Poisons which cause violent inflammation. 1. Corrosives. 2. Acrids. Now, in the first place, many poisons, placed by him in the first class, also act through absorption; namely, the essential oil of almonds, camphor, opium, (which the authors notice), and we may add, the antiar, and likewise, notwithstanding Mr Brodie's opinion, alcohol. Secondly, Some of them cause violent inflammation,—such as aconite, and the jatropha curcas. Thirdly, Not one of the substances included in Cl. II. Ord. 1. is a corrosive: arsenic, emetic tartar, and muriate of baryta do not corrode; they have no chemical action on the living tissues. Fourthly, Many poisons of Class III. exert their chief action through the medium of the blood on distant organs, such as elaterium, colocynth, cantharides. Fifthly, Many of those arranged in the first order of that class do never corrode,—such as verdigris, sulphate of zinc, cantharides. And lastly, There is no place for those poisons which act through absorption on the spine; namely, the brucea antidysenterica, the nux vomica and other species of the strychnos, as well as the vegetable alcalis, the brucia and strychnia. These few facts are enough to show that Dr Paris's classification is, to say no worse of it, not a whit better than any other yet published; and it is very much inferior, in our estimation, to that last proposed by Professor Orfila, (*Leçons* *de Médecine-Légale,* 1821), of which, by the way, Dr Paris has taken no notice. But of this hereafter.

14. *Homicide by misadventure.*—Under this title, we are presented with a very learned disquisition on the law regarding accidental death from improper medical treatment. No regular practitioner is criminally responsible for such an accident. But in the estimation of several high authorities, the case is very different, should the person be a quack, or other unlicensed practitioner. At one time the English law held him guilty of felony, especially if he practised for gain. At present, however, much doubt is entertained, whether he would be punished at all; and as cases of death from mismanagement are by no means unfrequent in the hands of such persons, yet no disposition is shown to check them, it is to be presumed that they will long continue to practise without danger and without control.

Chapter 15. consists of *a Synopsis of the objects of inquiry, in cases of sudden or mysterious sickness and death.* It contains an abstract of all the preceding inquiries, arranged according to the mode and order of investigation to be pursued in any given criminal case, and forms the most precise and perfect Medico-legal Manual, which has yet appeared in our language. A separate treatise of the kind, embracing also the subjects of Criminal Abortion and Infanticide, (here considered apart), together with some farther details on the difficult and doubtful points in pathology, would be of incalculable service to those practitioners who want time or inclination to cultivate the whole science; and would probably have much more effect in tending to diffuse among students a taste for the study of legal medicine, than all the advices and querulous declamations that are daily addressed to them on the subject of their indifference. Though the authors have, on the whole, been very successful in this synopsis, yet, like other parts of their work, it is by no means free from little inaccuracies and careless observations; faults which cannot be too scrupulously avoided, considering the chief purpose of such a treatise.

16. *On Abortion and Infanticide.* The English law respecting the crime of procuring abortion, though very recently enacted, is singularly inconsistent with the soundest tenets of modern physiology. In the first place, it admits the absurd distinction of the Roman law, betwixt a woman who is quick, and one that is not quick with child; and establishes a much severer punishment in the former than in the latter case. Secondly, It appears to put faith in the power ascribed to many drugs of bringing on miscarriage. And thirdly, The section of the statute against causing abortion in a woman quick with child, while enumerat-

ing the various means of effecting it, does not prohibit the only sure and effectual mode, namely, the introduction of instruments into the uterus by the vagina. We believe little doubt now exists of the absurdity of the distinction mentioned in the first clause, or of the omission noticed in the last. As to the power ascribed to some drugs of causing abortion, physicians are now very generally agreed, that no drugs possess it specifically; that violent cathartics may cause it; that violent poisons of any kind may likewise cause it; but that, unless a strong predisposition exists to miscarriage, neither these, nor any other means can produce it, except through the medium of a powerful and dangerous impression on the whole system. The only substance about which doubts may still be entertained, is the Spurred Rye. But it appears to us, that the facts hitherto published, though they show it accelerates labour once begun, are by no means sufficient to prove, that it can also bring on miscarriage during early pregnancy, in a female not already predisposed.

The treatise which follows on Infanticide, is chiefly composed from the works of Lecieux, Hutchinson and Capuron, which we reviewed in our last Number. We observe, that Dr Hutchinson has gained much credit with the authors by the successful plagiarisms we had to point out in his Essay.

17. *Of criminal Responsibility and Pleas in bar of Execution.* Under this chapter, the law is laid down regarding the age at which a child is held responsible for crimes; and then the various pleas in bar of execution are considered, which require the aid of the medical jurist to substantiate or repel them; namely, insanity, pregnancy, and errors in personal identity. While noticing the plea of pregnancy, the authors again justly condemn the absurd distinction which the English law makes betwixt a woman quick or not quick with child, the former plea alone being available.

Chapter 18. *of Punishments*, contains merely a few desultory remarks on flogging, and on the tread-mill.

The book is finally wound up with an appendix of 318 pages, containing the charters of the medical colleges, an account of the civil suits maintained by and against them, and long extracts from the medical evidence on some celebrated criminal trials. The practice of swelling out their works with such huge unwieldy appendages seems to be a regular book-making trick among English lawyers, which we are sorry Dr Paris has consented to imitate. All the profitable part of this monstrous excrescence could be packed in one-tenth of the space it now fills; and it would have occupied a much more useful place, had its essence been incorporated with the text.

The greatest and most manifest defect in this work, as now laid before our readers, is its arrangement. We have already hinted, that it is loose and illogical, but that this may be attributed mainly to the heterogeneous topics which the science embraces. Another difficulty, however, lies in the twofold source from which the science draws its existence and principles ; for the lawyer will prefer that his science should supply the groundwork of arrangement, while the physician will as naturally desire that the preference should be given to medicine. The authors have chosen the former mode; and, in consequence, except in its primary distribution into three parts, their work scarcely exhibits to a medical eye a vestige of arrangement at all ; it is rather a series of unconnected essays huddled together in three natural divisions. As a treatise on medical jurisprudence is directed primarily and chiefly to medical men, we cannot help thinking, that their convenience ought to be first consulted. We believe also that an arrangement, derived from the principles of medicine, would lead to two desirable results. First, it would be more logical and practically useful. We have not space for unfolding our ideas on this subject; but it might easily be shown, that such an arrangement, though necessarily artificial in its great divisions, would be distinguished from that of the work before us, by the natural and close relation of all its subordinate parts. Secondly, it would exclude all unnecessary disquisitions on points of pure law. It is a great error to suppose, that an intimate knowledge of law is required to form a sound medico-legal physician ; any student may acquire in a few hours all the requisite legal instruction. If a man purposes, indeed, to instruct the world by writing a book on the subject, it is doubtless indispensable that he study the laws of his country minutely, in order to discover the points on which medical inquiries may occur, and likewise the influence which these inquiries may have, in deciding the questions which lead to them. But this knowledge having been acquired, it is surely unnecessary for him to carry his reader through all the investigations by which he attained it. In fact, little more is called for than a plain enunciation of the points in law which require medical research. We cannot but find fault, therefore, with the numerous legal discussions which have been admitted into the work of Dr Paris and Mr Fonblanque; and we very much fear, that on this account, it may have the effect of deterring many students from engaging in medico-legal pursuits. Indeed, we have several times been assured by our professional brethren, that from Dr Paris's book, they see plainly a man must be a lawyer, in order to study medical jurisprudence.

We shall now take leave of Dr Paris and Mr Fonblanque, with one other remark addressed to the former. Our readers are aware, that the London College of Physicians found their claims to distinction, not so much on superiority in medical attainments, as on their university education, and their taste for classic lore. Hence many of them reckon it needful to uphold these claims, by cramming their professional writings with scraps from the Greek, Latin, and English classics. And so eagerly do some strive in this harmless, school-boy occupation, that they not only shower forth on their readers the daily quotations of the last twenty ages, but even scruple not to twist and mould their subject, so as to squeeze in chosen passages from their favourite authors. We do not charge all these sins on Dr Paris. But any one who has read a few pages of his book must be satisfied, that, for a work of sober science, it abounds too much in allusions to the extravagancies and fictions of fancy, and with uncalled-for citations of obscure passages in the ancient classics. In such a work, the only lawful pretext for introducing quotations, is to illustrate a fact or train of reasoning. Dr Paris, however, often introduces a train of reasoning to illustrate a quotation; nay, sometimes a remark appears to be made, only for the sake of ending it with a few Latin or English verses. As an excellent example of this singular mania, we may give the following abstract of an entire page of argument, intended to prove, that Hamlet's uncle's "leperous distilment of cursed hebenon" was nothing else than the essential oil of tobacco! Hebenon, a mistake for *henebon*, that is, *henbane*; henbane, a name sometimes given to *tobacco;* tobacco, a substance held in great horror by King James (see his *Counterblaste to Tobacco*), and therefore to be spoken ill of by every courtier, and likely to be maligned by Shakespeare, who sometimes paid court to majesty! And not only is this useless, visionary interpretation advanced with the most consequential gravity; but the critic even congratulates himself on having already favoured the world with it in the second volume of his Pharmacologia.

To conclude, much painful castigation will be required to render this great work acceptable to the public, and particularly to the medical world. Let the authors prune their classical excrescences, lop off the straggling branches of bare legal discussion, root out their rank, unprofitable Appendix, and confine the Royal College to the shady corner it ought in decency to occupy, or leave out the subject of Medical Police altogether; and even then, a patient revision and many little corrections will be wanted to render it truly worthy of the name of Dr Paris.

## III.

*The Study of Medicine.* By JOHN MASON GOOD, M.D. F.R.S. Mem. Am. Phil. Soc. and F.L.S. of Philadelphia. In Four Volumes. London, printed for Baldwin, Cradock and Joy. 1822.

MEDICINE has been defined, by those skilled in terminological lore and scholastic distinction, to be the art of prolonging life and curing disease; and physicians, by whom this has been received as a just character of their profession, have satisfied themselves with applying to their works the humble title of Treatises on the Practice of Physic. Others, who look on it rather as a dignified branch of human knowledge, and an exalted application of the intellectual faculties, speak of it as a science, and have written systems, containing philosophical views of the causes and formation of diseases, and of the general principles which reason shows ought to regulate their treatment or prevention. The author before us has taken a view different from either, and, keeping before him rather the mode in which its principles and facts are to be communicated to those who aspire at cultivating it as a profession, has named his work the *Study of Medicine;* and, of course, presents it to the public and the profession as a book containing all the information requisite to form a complete and comprehensive system of rules to understand the nature, and conduct the treatment, of the disorders incident to the animal frame. It is difficult to say, whether a work, coming forward in such circumstances, is to be viewed as fortunate in the choice of an unpretending title, or as unwise in laying itself open to the criticism of the profession, by the novelty and eccentricity of a name which is not sanctioned by precedent, or approved by common practice. It is evident, from the title and the construction of the work, that the author has been less solicitous to write a treatise on the practice of physic, or a system of medical science, than to communicate to the student a correct view of the present natural history of the distempers incident to the human body, and to impress particularly on his mind the relation which the state of disease bears to that of health. In a mere system of the practice of physic, an author has, in general, two purposes only before him,—1*st*, A description of diseases sufficiently accurate to enable the observer to know and distinguish them; and, 2*d*, An account of the means which have been found most successful in treating them. The scanty and limited collection of professional instructions which principles so narrow would furnish, would be not only useless and dangerous, but would give just reason for the impositions of ignorance and charlatanism, and would quickly convert the rational exercise of a liberal art into a degraded system of the most blind and indiscriminate empiricism.

Among those medical teachers, therefore, who felt the honourable ambition of rescuing the art which they professed from an alliance so discreditable, it was soon found expedient to establish the principles of medical practice on a more substantial and permanent foundation. An intimate study of the phenomena and effects of disease has shown, that a mere history of symptoms, and enumeration of methods of treatment, are insufficient to constitute a rational system of nosographical information; and the gradual diffusion of the spirit of true practical philosophy taught physicians, that symptoms were less to be regarded than the action or process which they indicated; and that the only true method of communicating just ideas of the nature of disease, and the means of removing it, was to connect the semeiographic details with sound pathology, and to accommodate the sanative precepts rather to the intimate nature, than to the exterior signs of disease. The complexity thus introduced into didactic medicine, while it was indispensable to the dignity and the interest of the art, might well tend to bewilder even intelligent minds, and would undoubtedly cause some perplexity to those who were only entering on a pursuit, which its extent rendered formidable, and the necessary connexion of which with the lives of men rendered truth and accuracy qualities of the first consequence. As the boundaries of science, therefore, have been extended,—as its individual regions have been cultivated with greater assiduity, and its parts brought to greater perfection;—as, in short, the sciences which furnish the elements of the healing art, have been advancing to the perfection which they at present possess, it has been found expedient to introduce order, method, and subdivision; and the multiplicity of objects has rendered regularity of plan, and distinctness of arrangement, indispensable conditions to the construction of a useful system of precepts on the art of treating diseases. The merit of a good work on this subject, therefore, consists, not merely in the fidelity and accuracy of the descriptive details, and in the exhibition of sound principles of pathology and therapeutics, but is also in an eminent degree dependent on the manner in which the materials are disposed, and on the facility with which its arrangement contributes to the great object of a didactic treatise,—the easy communication of knowledge.

We have delivered these preliminary observations, for the express purpose of reminding our readers of the requisite constituents of a system of practical medicine, and that they may recognise the legitimate principles according to which the merits of a work of this description ought to be judged. In such an inquiry, indeed, it is absolutely requisite to remember, that medicine, considered as a science, consists of four great divisions; nosology, or the classification of diseases according to their similitudes and differences,—semeiography, or the historical description of the external signs and phenomena by which they are attended,—pathology, or the history of the morbid process or action on which these phenomena depend,—and therapeutics, or the exposition of the principles which should regulate the means employed to control or arrest, modify or palliate, the morbid action in which the disease essentially consists. Of these four divisions, it is evident that the first is more intimately connected with the manner of instruction than the others, and bears a more immediate reference to the manner in which the science is to be communicated, than to the quality or degree of knowledge which is taught. In this department, therefore, arrangement is the first virtue; and as all arrangement is valuable only so far as it is perspicuous, and contributes to the ready communication and firm retention of knowledge, the nosological part of a treatise on the medical art ought to possess, above all things, perspicuity and neatness of arrangement. The merit of the semeiographic, pathological, and therapeutical information, though by no means independent of this necessary quality, consists, however, more especially, in fulness of detail, correctness and fidelity in the statement of facts, distinctness in the arrangement of arguments, and a rational exposition of principles, whether founded on actual observations, or derived from the judicious management of these in the hands of an intelligent and impartial reasoner. That the nature of a disease, and the principles of its treatment, may be well understood, it is requisite to know its phenomena and effects on the living body—to be familiar with those exterior signs by which it is more particularly distinguished—to have correct views of the morbid process in which it consists—and to know the means, if there be any, by which this process may be controlled. Next, therefore, to lucid nosological arrangement, must be estimated the truth of semeiographical details, correctness in pathology, and sound principles of therapeutics; and every treatise on the practical measures of the art of healing, must be valued or disregarded according as it possesses, or as it is destitute of these requisite properties. We have thought it requisite to unfold those general principles, as the best and most legitimate for ascertaining the merits of the work before us as a system of medical instruction. It is not our intention to descend to the irrational and profitless task of minute criticism of a work so comprehensive and voluminous, or to examine the correctness of the individual descriptions of diseases given by Dr M. Good. To those who will not peruse the original this must be a useless service; and those who will peruse it, would be equally little benefited by such a gratuitous labour. We propose, on the contrary, to consider the merits of our author's work in a general manner,—to inquire how near he has approached to the ideal standard of perfection which we have attempted to establish; and to discover to what extent his opinions on the mode of arranging the materials of medical science, and communicating the treasures of medical knowledge are correct, or consistent with reason. We shall inquire what are the advantages which his arrangement possesses over others; we shall attempt to ascertain the fidelity of his semeiographical descriptions, and the truth of his pathological views; and, finally, we have to examine the justness of his therapeutical principles.

1. *Nosological Arrangement and Distinction.*—Experience and human wisdom have devised various means of communicating the elements of science and the principles of art; but it seems now to be agreed, by the general suffrage of the learned, that of all the plans by which the adept may initiate the neophyte, the best are the synthetic and analytic; each of which has its advantages, and each of which becomes most appropriate in particular circumstances. The first is best suited to a science, or department of science, the facts of which are well authenticated, and the principles of which have been already proved to be true by the test of time. The second is more adapted for communicating knowledge, which has not yet risen to the rank of system, or attained the stability of mature age. In this the professor puts himself on a level of equality with the pupil; and the instructor submits with equal impartiality to his own faculties and those of his disciple, the facts from which the doctrinal principles are expected to flow. It is undeniable that this is the most rational and philosophical method of communicating knowledge and of cultivating the human faculties; but the limited period necessarily prescribed for education, and the necessity of economy in the use of time, render it very rarely practicable in its widest extent; and it is generally found convenient to employ a method which will unite the didactic advantages of the synthetic with the scientific benefits of the analytic mode of instruction.

If we apply these principles, the truth of which is sufficiently obvious, to the subject of the present work, we shall find, that there is no science about the mode of communicating which, it will be so difficult to deliver a decided opinion as that of medicine. For this various causes may be assigned. The principles are not always so firmly established as to warrant a synthetic arrangement; the facts are often uncertain or contradictory, or encompassed with various sources of misrepresentation and error; and, as much depends on the capacity or fidelity of individual observers in a science too extensive to be cultivated successfully by a single class of inquirers, improvement and discovery are often pregnant with discrepancy and confusion. The science of medicine, also, unlike others, is not single or individual, but complex and multiform, and consists of materials derived from a greater number of sources than any other which is cultivated by the human faculties. Of a science thus constituted, it is often found expedient to distribute the didactic arrangement according to that of some one of these component divisions from which its principal materials are derived; and we thus know, that, among the modern authors who have avowedly adhered to system, some have admitted anatomical, others physiological distinctions, and a few have been guided by therapeutic principles in unfolding the elements of the healing art. These methods of arrangement are neither to be wholly blamed, nor commended in unqualified terms. Like other human contrivances they are right or wrong, according to the circumstances in which they originate, and must become judicious or unseasonable, purely as they answer or defeat the purpose for which they are designed;—as they facilitate or obstruct the communication of sound medical knowledge,—the chief object of their construction.

The opinion which we have thus delivered will prepare our readers to expect neither very violent praise nor very outrageous censure of the work of Dr Mason Good; and will enable them to perceive, that the arrangement which he has adopted in describing the diseases of the human body, if it is to be examined critically, must undergo this examination, with attention to the circumstances which we have already suggested to consideration. At a former period, when our author published his very learned nosological arrangement, we expressed our sentiments on the question of a nosology, founded on physiological principles; and coincided with the author in the opinion that it was sufficiently natural, since it accorded intimately enough with the order in which the processes of the living body succeed each other, and with the various purposes to which the individual functions are subservient. To the critical, or the captious, indeed, it will not be difficult to discover several momentous objections to this principle of classification; and it must be obvious, that, however easily ordinary affections may be referred to this arrangement, the important and numerous tribe of distempers which are connected with organic derangement, must ever with difficulty, sometimes with considerable violence, be forced to occupy the situation allotted to them. It may also be remarked, that however rational the principle adopted may be, the very imperfect condition of physiological science must operate as a considerable impediment to its execution, and the nosological arrangement, which rests on the sole foundation of physiology, must partake in the errors and defects of the science on which it is established. We know not whether these objections, which must have occurred to our author, appeared to him of much moment. It is probable that they did not; or if they did, that he consoled himself with the reflection, that human ingenuity could scarcely suggest any probable principle of nosological arrangement which would be less, or even equally free from objection.

In whatever manner, however, or by whatever reasons, our author reconciled his mind to the scheme of a physiological nosology, it is certain that a nosographical and therapeutical work, constructed according to the same principle, is, in a much stronger degree, liable to all the objections which may be urged against a mere nosological arrangement of this description, and to several which apply with greater force to a work composed solely or principally for practical purposes. A nosological arrangement implies nothing more than a classification of diseases without reference to any practical purpose;—a convenient tabular view or enumeration of morbid actions, without particular allusion to the causes concerned in their formation, or the means by which they may be controlled. Now, though it is undeniable, that a correct scientific arrangement, in which uniformity of principle and regularity of division are observed, is infinitely preferable to that in which order and unity are violated, and consistency is destroyed, it is nevertheless manifest, that if we keep out of view the practical purposes to which it is intended to apply it, arguments may be advanced in favour of a nosology founded on any given principle whatever. We will grant that the physiological plan of arrangement possesses more substantial merit, and is entitled to warmer commendation than this mode of defending it implies; and we will admit that it presents over other systems peculiar advantages, in exhibiting a distinct view of the relation between the phenomena of health and of disease. In this manner it furnishes, perhaps, the most natural and obvious method of enumerating all the morbid deviations to which the properties, actions, and functions of the living body are liable; and may be admitted to be an important and necessary part of a complete course of the Institutions of medicine. It is different, however, with a work which professes to unfold the history, causes, and treatment of diseases. The chief object of the practitioner, who desires to know a safe and successful mode of treatment, is to be familiar with the nature and pathological resemblances of the diseases with which he has to contend; and a classification founded on physiological characters, will be often not only very remotely connected with his purpose, but sometimes extremely useless. If, therefore, it should happen, that a physiological system of nosology is objectionable or inexpedient, when used merely as a list of disorders without reference to practical purposes, it will be infinitely more useless and objectionable, when connected with a system of practical directions for the treatment of disease. We are, indeed, inclined to think, that the exclusive adoption of the physiological plan for the purpose of nosological distinction, must have the effect of leading the mind of the student to assign to function a greater influence in the formation of disease than it actually possesses; and to make him overlook the important fact, that the morbid condition or affection of function, which occurs in disease, is almost invariably preceded by a change in the minute or intimate organization of some part or parts concerned in the morbid process. It must not be forgotten, that although the morbid action in which a disease consists, exercises a peculiar and determinate influence on the processes and functions of the living body, yet it by no means follows from this, that the disease consists in lesion of function only. This injury done to the function, is merely one of many phenomena, which are either necessarily and mutually connected, or spring from the same generating cause; and if these phenomena be investigated and traced to their initial point, it will not unfrequently be discovered, that the derangement of function does not form a very important part of the complex assemblage; and a character founded on such a circumstance, furnishes either a very forced, or a very unnatural and useless idea of the distemper which it is intended to designate.

These observations will be rendered more clear and intelligible by an example of the inconvenience to which we allude. In Dr Mason Good's enumeration of the diseases of the digestive function (Cœliaca), it may be doubted whether all the forms of alvine looseness, are justly referred to the genus Diarrhœa. Three of these at least, the mucous, serous and lienteric forms, depend on an inflamed state of the gastro-enteric villous membrane, and have a claim as strong at least as Gastritis or Enteritis, to be ranked among the diseases of the *hæmatic* class, or of the sanguineous function. Is *coryza*, which is uniformly the beginning of catarrhal inflammation, justly placed among *pneumatic* maladies with *polypus*, *rhonchus*, and the mechanical imperfections of voice; or cough (*bex*), which, whether *humid* or *dry*, is symptomatic of a morbid state of the bronchial membrane or lungs, justly associated with such disorders, as asthma, nightmare, and rheumatic pain of the side? The impropriety of this mode of arranging diseases is still more evident in the instance of breast-pang (*sternalgia*, *angina pectoris*), which our pathological information shows is not so much a disease, as an assemblage of symptoms, which depend on several organic changes in the structure of the heart.* If it be proposed to defend this classification, on the plea that the morbid actions or conditions above alluded to are all connected with the function to which they are referred, it may be answered, that many other diseases or morbid actions are equally connected with it, and that the function or functions are reciprocally influenced by other maladies, which we know are not primarily seated in them.

We look on these errors, or defects, or inconveniencies, as connected with the physiological system of arrangement, and not as depending on the manner in which our author has treated it. They are perhaps more conspicuous, if possible, in the fourth class of our author, which comprehends the diseases of the nervous function. It so happens, that the functions of what has been termed the nervous system, are more imperfectly known than those of any other part of the human body. We know that they have some influence on the intellectual faculties, on the proper sensations, and on muscular motion; but beyond this our knowledge is conjecture, and our reasoning supposition. It is known that the nervous system is connected with, or presides over, several different actions and processes in the living body;—but it has been conjectured that it is concerned in many more. Dr M. Good, appears to have been unwilling, we would not suppose him unable, to investigate this matter, and place it in its true light; and the result is, that the most opposite and unlike maladies are grouped under the general head of diseases of the nervous function. Though sundry attempts have been recently made to prove, that the intellectual faculties and the mental emotions and passions depend on the organization of the brain, we are not however aware, that the doctrine is so firmly established as to sanction the theory which refers every variety of mental derangement to the family of nervous diseases. It is true, that in this part of his arrangement, our author may adduce the authority of Sauvages, Cullen, and most other nosological authors; but various circumstances have led us to question the solidity of the foundation so much, that we begin to consider it much more philosophical or rational, to arrange these disorders by themselves. Some experience on this point, has led us to conclude, that physicians have too little studied the phenomena of mind, as it is named in this affected age, or, in our homely but circuitous mode of speech, have given too little attention to the faculties and emotions of the human soul, and to the appetites and desires of the man,—and that metaphysicians have too much disregarded the knowledge which may be obtained from the study of the organization and properties of the parts believed to be concerned in the phenomena of thought, feeling, and passion. If this subject were investigated in the accurate and comprehensive manner in which it deserves, we might, at least, expect to learn in what situation of the nosology it is misplaced. In the mean time, whatever opinion be entertained, we are certain, that, if improvement on former nosologists was to be attempted, the troubles of the human mind and brain ought not to have been united in the same class with diseases of the eye and ear, spasmodic or convulsive motions of the muscles, and the various lethargic or comatose maladies which result from positive and palpable disorganization of the brain.

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* Hodgson on Diseases of Arteries and Veins, p. 36, 37, 52, 2d Edit. 1815; and Laennec on the Diseases of the Chest, p. 369. Forbes' Translation.

The second order of this class furnishes some very strong examples of the incongruous associations resulting from physiological arrangement. The genus *paropsis*, or morbid sight, presents thirteen species, of which two only, *amaurosis*, or retinal blindness, and *strabismus*, or squinting, can with any shadow of justice be called diseases of nervous function, and the latter is by no means, in every circumstance, of this description. Several of these species, as night-sight, day-sight, long-sight, short-sight, are mere symptoms of peculiar, unsound states of the transparent or other textures of the organ, or depend upon variations in the optical qualities of the transmitting media. The 8th and 9th, humoral opacity and cataract, consist in changes of the transparency of certain parts, and are totally unconnected with nervous disorder. The 7th, 10th and 12th, are still more awkwardly situate among affections of the nervous function; opaque cornea, closed pupil (*synizesis*), and staphylome, are uniformly the result or effect of inflammation, and, if they are to be received into nosology as diseases, should occupy a place along with inflammatory affections.

It is with much reluctance that we thus venture to show the practical inconveniencies of an arrangement so elaborate, and apparently so neat, as that of our author; and had it been left to its proper and legitimate glory, as a mere nosological table, we should certainly have abstained from interrupting the tranquil happiness of its existence. But when it is brought forward as the basis of a system of therapeutical instruction, we conceive it must be viewed in a very different light, and estimated according to the facility with which it contributes to the great purpose of the work in which it is introduced. The examples which we have already adduced, show, that it is often inconsistent with good principles of pathology, and thus defeats one, at least, of the essential objects of medical instruction; but they constitute by no means the most important, or even a considerable part of the inconveniencies of the system. We have already adverted to the difficulty which must be experienced in arranging diseases of organization on the physiological plan; and we find, that this department has not been managed more successfully by Dr Good, than our *a priori* notions lead us to anticipate. We will not offer our opinion on the propriety of associating, in a nosological table, such organic diseases as cancer and tubercular destruction of the lungs with mere plethora (Ord. IV. Dysthetica) and hæmorrhage, because that opinion must be at variance with the notions of our author; but we fear it will require a most unwonted exertion of ingenuity to demonstrate the pathological resemblance between morbid fulness and distension of the vascular system, and the local derangement of structure which terminates in consumption or cancerous ulceration; and we are certain, that the practitioner will derive no assistance from such a constrained and artificial association.

We may here observe also, that our author's use of the term *Marasmus*, or Wasting, is too vague to be scientific, and too general to be useful. He has made it comprehend, 1st, the unknown and indefinite state called *atrophy*, which in nine of ten cases depends on internal disorganization; 2d, the condition which our ignorance has hitherto compelled us to name "Climacteric decay," "Breaking up of the system," &c.; 3d, the tabid decline of authors; and, 4th, the wasting process of pulmonary destruction. Now, however systematic, or even beautiful, such arrangements may be in the eye of the physician, who merely looks to the outward or obvious traces of disease, they cannot fail to be highly absurd in the opinion of those who look beyond symptoms, and found their distinctions on pathological characters. We have not leisure to show all the merits or errors of this division; but we cannot allow it to pass without observing, that the term *tabes*, or "decline," ought to be expunged from nosographic language, and the distempers which it is employed to indicate should be referred to their true situation. Of the four varieties enumerated by our author, and adopted, indeed, from previous nosologists, the first and third, purulent and scrophulous decline, must evidently pertain to another place (*Parabysma*) of the arrangement; the second (Venenata), depending on poison, would, if carefully examined, prove to belong either to the painters' colic, or to some process of visceral derangement or destruction; and the fourth (Dorsalis), would in like manner be found to indicate either a disorder of the genital organs,[*] or another disease which had been previously latent, but subsequently called into action by the operation of a powerful exciting cause.

It is indeed but too evident, that the physiological system is fraught with difficulties in the collocation of diseases of disorganization, which not even the ingenuity and precise intellect of Dr Good have been able to remove or surmount. It is to this cause that must be ascribed the error of referring various forms of visceral disorganization, under the name of *parabysma* (*coacervation*, *infarction*), to the class of coeliac disorders, or diseases of the digestive function. Though it cannot be denied that, when the spleen or liver are enlarged, hardened, or tuberculated, the function of digestion or alimentation is ultimately injured, it ought to be remembered, that the local change of organization is originally unconnected with this functional derangement, and is indeed dependent on the structure and vascular system of the organ itself. The mesenteric, intestinal, and omental forms of *parabysma*, are still more improperly placed in this part of the system, since they consist in very marked, and sometimes different forms of organic change, or of new-formed structure. To the same cause must we ascribe the entire want of any place for organic affections of the brain, unless we refer them, with megrim and sick-headach, to the genus of *Cephalæa*, the fourth order of the Neurotic class. Here, however, we find such moderate distempers as Restlessness, Antipathy, and symptoms converted into diseases, in the instances of Sleeplessness, Dizziness, and Fainting. To the same cause, lastly, must we ascribe the mottled and heterogeneous aspect of the Sixth Class,—the maladies of the excernent function. By the physiological principle of our author, this class is made to comprehend the various species of Sarcomatous, Encysted, and Bony Tumours, under the general term of *Emphyma*; immediately afterwards, the different diseases of Bones; Dropsies; Emphysema; all the various and opposite forms of disordered urinary secretion, from whatever cause they arise; variations in the cutaneous discharge; many cutaneous eruptions; parasitical animals in the skin; unhealthy states of the cuticle and of the hair; and, lastly, various malformations of the skin. Now, it is hardly conceivable, that a sarcomatous tumour, a bony growth, or a rickety softening of the skeleton, should arise from the same functional derangement as dropsy, emphysema, or a cutaneous eruption; and although the arrangement were physiologically well-founded, which we are disposed to question, it only proves more evidently the absurdity of the scheme, when applied to the purposes of practical medicine.

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[*] Many of the symptoms ascribed to the disease described under the name of *Tabes Dorsalis* (φθισις νωτιας, not νοτιας, *humid decline*, as Dr G. has, by unaccountable inadvertency, made it) depend either on stricture, diseased prostate, or diseased testicle.

The observations which we have hitherto made, allude to those objections only to which the physiological mode of arrangement in general is liable. We have, however, to notice those which are not necessarily connected with it, and which are more to be ascribed to incorrect or erroneous views of our author. These we are glad to find are not very numerous, but are still sufficiently important to claim passing attention, and more particularly because they imply pathological notions which we did not think could now be maintained, and which we should be happy to see banished from schools of medicine and the books of physicians.

The tribe of inflammatory diseases is the most important in any classification, whether nosological or practical,—whether we regard their frequency, their danger, or the certainty with which they may be controlled; and in every work which professes to unfold the history and treatment of disease, the numerous individuals of which this family consists, ought to be placed in such order and relationship as their common characters and individual peculiarities most manifestly require. We are quite unable to discover the propriety of making visceral inflammation (*Empresma*, *incendium*, Anglicé inburning), a genus comprehending no fewer than eighteen species, none of which bear a very close affinity to each other, and converting Ophthalmy with six species, Catarrh with two, and Dysentery with two, into separate genera. Is it requisite for us to ask, with what justice cerebral inflammation (*Cephalitis*) can be made a species of the same genus with bronchial or gastric inflammation? or how the ear-ach can be justly referred to the same genus with inflammation of the liver or spleen? The term, Visceral inflammation, is, of itself, too vague for the precision of modern pathology. If it be granted, which we are not much disposed to do, that, in compliance with the practice of the ancient anatomists and aruspices, the term Bowel, or *viscus*, be applied not only to the heart, lungs, and liver, and the several parts of the intestinal tube, but also to the brain, to the kidney, to the womb, and to the testicle, we cannot with any shadow of propriety apply the same term to the ear, the parotid gland, the throat, or the larynx;—or, if we shall extend the term so generally, why not apply it to the eye also? Catarrh and dysentery are, in our judgment, as much visceral inflammations as Bronchitis and Enteritis; and we must acknowledge our inability to discover the reasons, which induced the author to assign them a place as genera distinct from the others. We look on this mode of classification as the extreme love of physiological distinction, and, in this spirit, producing a degree of inconsistency with itself, and confusion, which defeats its own object. The only physiological similarity on which our author can rest his defence of this constrained association is, that the several parts to which he has allotted the species of visceral inflammation to which we allude, possess a vascular system; and the most ardent lover of nosological distinction would exhaust all his ingenuity either in uniting diseases so unlike on a priciple so general, or in converting the arrangement to any useful purpose. Some of these evils might have been avoided, by subdividing this extensive *genus* of visceral inflammation, and placing together those species which are most similar. A sufficiently rational ground of association would have been derived from similarity or identity of anatomical structure, so as to have united the inflammations of villous surfaces into one genus, or sub-genus, those of serous parts into another, and those of the compound organs into a third. This device would have had the further advantage of not increasing the number of individual genera; for, by the nature of its construction, the three subsequent genera of Ophthalmy, Catarrh and Dysentery, would have easily come under some part or other of the general heads, and thus have lost the individual stations, which they at present so awkwardly occupy.

In some parts of this class (Haematica), Dr Good has unnecessarily augmented the number of genera, by subdividing a single disease into two, according as it differs in its commencement and termination. Thus, Abscess (*Apostema*), which is uniformly the consequence of some degree or form of the inflammatory process, is very improperly converted into a separate genus, including several species; nor is ulcer with greater propriety made to appear as an independent malady. We may here remark, that caries and carious ulcer cannot both be rightly placed. They certainly signify the same thing, viz. the slow ulcerative absorption of bone, which, on the one hand, is very different either from Necrosis (*gangrene seche*), or any other form of gangrene, and, on the other, is the material cause of the ulcer of the soft parts, which has procured it from our author its situation under that latter genus.

We have occupied so considerable a proportion of our space and time in the examination of this part of our author's work, that we can only remark further, that several of the genera referred to the order *Cenotica*, class *Genetica*, are rather symptoms of particular diseases than actual diseases themselves; and, what is more blameable, they are symptoms of inflammation occurring very nearly in similar circumstances to those in which this action is developed in other parts of the system. This is the case with several of the forms of Whites, or *Leucorrhœa*, of Clap, or *Blennorrhœa*, which is a true urethral or vaginal inflammation; and even most of the cases of obstructed menstruation should be viewed in no other light than as symptoms of a morbid state of the womb or its appendages.* It is, indeed, a general result of this system, or of our author's mode of managing it, that symptoms are converted into diseases, and true diseases either dwindled into nothings, or admitted only as they are capable of being ascribed to some derangement in function or process of the living body.

2. *Nosography and Semeiography.* While we have been constrained to speak some truths which may not be very gratifying, on the subject of our author's arrangement and nosological distinctions, it is with extreme pleasure that we bear testimony to the general excellence of the nosographical part of his work. This is unquestionably the best and most redeeming part, as people speak, of the whole book. The semeiographic descriptions are clear, precise, and in general faithful, and conveyed in language neither too fine for the subject, nor too plain or slovenly. To say that they are instructive is but cold and inadequate praise; and we are certain that the reader will not only derive useful and curious information from their perusal, but will be much gratified by the valuable literary notices with which the author has occasionally enriched his descriptions. Even on well known subjects, Dr Good has contrived to collect and communicate a great proportion of information which cannot fail to command interest. On maladies which former authors either described imperfectly, or omitted, or did not know, our author has dwelt with much advantage to his readers; and we have no hesitation in recommending this part of the Study of Medicine, as containing the most valuable and extensive collection of nosographical information extant. It is unnecessary to refer to any description in particular; they are in general accurately done, and show very happily and usefully the extensive learning and elaborate research for which Dr Good is distinguished.

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* C. M. Clarke on the Diseases of Females which are attended by Discharges.

3. *Pathology.* The pathological part is less happily performed, and appears, next to the nosological, to be the least perfect of our author's work. This, we conceive, has in some degree arisen from the principles by which he has been guided in the formation of his nosology; and the particular defects, to which we allude, will be easily understood from the observations to which that part has already given rise. The greatest blemish, perhaps, in this otherwise excellent and elaborate work, is, that pathological principles and distinctions are kept greatly too much out of view; and while the author has been anxious to give a view of the healthy functions of the living body, and of the morbid derangements to which they are liable, he has omitted to show, or to investigate, the intimate nature of the morbid processes incident to the organic tissues, and of their effects on the general system. Though the first of these objects is undoubtedly very important, it is however undeniable, that the second is equally so; and no system of practical instructions, or of therapeutics, can be regarded as perfect, or even as useful, in which pathology is either incompletely taught, or much neglected. Of the two kinds of pathology known in the schools under the distinctive appellations of General and Special, it is the latter that is here, and on all occasions, the most useful to the rational physician. We are, indeed, inclined to doubt the wisdom of admitting such a thing as General Pathology into the science of medicine, or its didactic and practical treatises, in the present state of the art. All general and comprehensive theories of disease, or of morbid actions, are liable to be exceedingly fallacious; and, perhaps, many of the evils with which the healing art has been unjustly charged, are to be ascribed to the spirit of establishing general views of disease, and applying them to the explanation of many individual cases, when the first object should have been, to understand the pathology and characters of these individual cases, and to have employed a numerous and extensive collection of them for the purpose of establishing the general principles. It is a sparing or imperfect statement of pathological facts, sometimes their entire omission, in the history of individual diseases, that constitutes the most serious defect in the present work, considered as an assistant to the student or practitioner. Our limits and general plan will not permit us to enter into any minute criticism of this part of the Study of Medicine; and our readers must be satisfied with general notice of the circumstance. It is not, however, our intention to say, that our author is quite deficient in pathological information; for in many instances he unfolds very just, and sometimes ingenious views, of the morbid process, its causes and effects. But in general there is much

less of this than corresponds with the taste and knowledge of the present day; and his pathology of organic diseases is by no means the perfect and luminous exposition which it ought to have been, and which the recent improvements in this department of science demanded.

4. *Therapeutics.*—The information which our author has collected on this subject, is extensive, and conveyed in a very interesting manner. Much of it is new, and relates to articles which are either little known or little used in the medical treatment of this country. The order, however, in which it is communicated, is not exactly the best for a work on the treatment of diseases. The enumeration and history of remedies, indeed, which Dr Good has given, may be regarded as a great and magnificent system of *materia medica*—as a history of the medical or physiological effects of all the articles or means that have been used by physicians, surgeons, accoucheurs, empirics, patentees, in ancient and in modern times, in Egypt, in India, in Palestine, in Greece, in Italy, in France, in Germany, in England, in America, and, in short, in every situation in which remedies have been used for removing or relieving the ailments of men. The extensive and accurate learning, and the curious research with which Dr Good has illustrated and adorned this, among other parts of his work, have given it a charm which is not often found in medical writings; and the reader who is attracted merely by his general love of science, would find more pleasure in the perusal of Dr Good's descriptions, than in any other work in the whole compass of medical literature. To the young physician, however, qualities of another character are requisite. It is his interest, in perceiving how a disease is to be controlled, to know, as exactly as the subject admits, to what part of the morbid process he is to accommodate his curative means, and what species of curative means is peculiarly indicated. It is therefore less necessary to be told, that the leaves or the root of one plant, or the bark or wood of another, have been found useful in curing, as is generally said, any disorder, or in arresting the progress of any disease;—or to be informed that an eminent physician was very successful in his treatment of any particular disease, by the exhibition of some metallic salt, or some unknown and mysterious preparation,—than to see the curative indications naturally and directly deduced from a correct view of pathological facts, and a just notion of the morbid process which these facts indicate. The inattention, indeed, with which our author has unfolded the pathological characters of many diseases, has made him completely overlook this essential requisite of a didactic treatise. We rarely meet, in the Study of Medicine, with any attempt to form correct therapeu-

tic principles, or to show by what remedial means, or by what agents of the Materia Medica the purposes which these principles indicate, are to be effected. The extensive reading, and the accurate learning of the author, are, on the contrary, employed almost entirely in the history of all the means that have ever been tried in relieving human suffering; and, instead of a rational and systematic view of the means likely to do good, the mind of the reader is lost in the endless and bewildering variety of agents which have, each in their turn, nearly equal claims on his confidence. The worst effect which this system of therapeutic instruction is calculated to produce, is that of empiricism on the one hand, and want of decision on the other; and the mind of the practitioner will be divided by the multiplicity and variety of reputed remedies, instead of looking with a steady eye on the morbid action, and the means of controlling it, or bringing it to its natural termination without injury to the economy.

In expressing the foregoing opinions on the merits or errors of the Study of Medicine, we shall perhaps appear, especially to the author and his friends, to have been more severe in our strictures than the general merits and other qualities of the work justly warrant. We think it is now time to say, that, notwithstanding its manifest defects and errors as a guide to the practitioner, the Study of Medicine is, however, one of the best and most valuable elementary works which has been published for many years. We will not admit that it is a good system of the practice of physic, that it will be a useful text-book to the student, or a treasure of reference to the advanced practitioner; but we give it as our decided and sincere opinion, that it will be read and studied with much advantage by every class of medical readers, and that it will be particularly useful to those who are engaged in the study of Physiology, and the Institutions of medicine. The physiological dissertations which are prefixed to each class of diseases, contain much useful and accurate information, disposed in an agreeable and interesting form. These may be accounted the best part of the book; and we are happy to bear this testimony to the character of a work, which its peculiar arrangement and its pathological and therapeutic inconveniences prevent us from esteeming an effectual or confidential guide to the practitioner. The work of Dr Good is indeed a system of the Institutions of Medicine, rather than of the Practice of Physic, and the author may therefore consistently enough with the name which he has chosen, defend its general arrangement and construction. It may undoubtedly be said, that Dr Good has written a work on the Study of Medicine, in which he unfolds the formation of those unhealthy states which consist chiefly in derangement of function, and shows the student, while he instructs him in physiology, or the state of the human body in health, the various morbid changes which may occur, and the relation in which they stand to the healthy actions. This, however, is the sole merit, and the true character of the work; and it would require neither few nor inconsiderable alterations in arrangement, numerous accessions and improvements in pathological information, and a totally different mode of unfolding the therapeutic details, to render it even moderately useful as a system of instructions on the healing art.

To conclude, we regard the present work in the light of an experiment made to determine the real merit of the distinctions afforded by physiology as the foundation of a system of practical medical knowledge; and it appears to us quite evident, that the result is a satisfactory proof, that in the present state of physiological science at least, it is quite unfitted for the purposes intended. Dr Good is a physician of acknowledged talents, of learning and information, not only more extensive and accurate than most of our profession, but such as will justly enable him to bear comparison with the majority of distinguished scholars; and his opportunities of professional information are certainly quite equal, in many instances much superior, to those which are generally enjoyed by authors of elementary works. Yet, with all these advantages, we have seen that the work which he has produced, though possessed of great and various merit, is not to be viewed as a scientific and faultless system of pathology and therapeutics. These defects are undoubtedly to be chiefly, if not entirely, ascribed to the order in which the author has arranged his materials, and to the resolution to which he adheres, of adopting the physiological plan of nosology throughout. It is mainly to this cause, as we have seen, that the defects of the Study of Medicine as a pathological work are to be imputed,—and we think it cannot be doubted, that the want of clear therapeutic principles originates from the same cause. Had the valuable materials which our author's learning and industry have enabled him to accumulate, been disposed in a form more directly suited to the nature and distinctive characters of human disorders, and to the means by which they are known to be controlled or alleviated,—had our author, in short, in composing a treatise on the history and treatment of diseases, deemed it unnecessary to adopt the arrangement and distinctions of his nosological work,—had he fixed his eyes steadily and closely on the pathological characters and organic distinctions, rather than on the physiological relations of disease, he would have produced a system which, without losing the advantages of the present work, would have had the further merit of being much more useful to the clinical student, and the active practitioner.

# PART III.

## MEDICAL INTELLIGENCE.

*Report of Diseases of Birmingham, from April 3d to July 3d,* 1823. *By John Darwall, M. D., one of the Physicians to the Birmingham Dispensary.*

CHRONIC DISEASES.

| | No. | | No |
|---|---|---|---|
| Paralysis | 6 | Hepatitis C. | 3 |
| Hemiplegia | 2 | Splenitis C. | 1 |
| Cephalæa | 35 | Marasmus | 27 |
| Hypochondriasis | 3 | Ascites | 6 |
| Mania | 1 | Hernia Hemoralis | 1 |
| Convulsio | 1 | Amenorrhœa | 8 |
| Chorea | 2 | Hemorrhagia | 10 |
| Epilepsia | 4 | Leucorrhœa | 2 |
| Hemicrania | 1 | Carcinoma Uteri | 1 |
| Leucoma | 1 | Prolapsus Uteri | 1 |
| Amygdalæ tumidæ | 5 | Dysmenorrhœa | 1 |
| Tussis | 11 | Rheumatismus C. | 18 |
| Bronchitis C. | 10 | Lumbago | 1 |
| Asthma | 67 | Struma | 4 |
| Phthisis Pulmonalis | 38 | Anasarca | 1 |
| Hæmoptysis | 7 | Scorbutus | 1 |
| Dyspnœa | 2 | Ulcera Cruris | 2 |
| Palpitatio | 1 | Tumores | 3 |
| Hydrothorax | 2 | Mamma Excoriata | 1 |
| Asthenia | 12 | Abscessus | 1 |
| Dyspepsia | 173 | Lepra Vulgaris | 1 |
| Gastrodynia | 4 | Acne | 2 |
| Obstipatio | 42 | Scabies | 1 |
| Diarrhœa | 8 | Lichen | 1 |
| Hysteria | 2 | Porrigo | 6 |
| Tænia | 9 | Ecthyma Mercuriale | 1 |
| Lumbrici | 4 | Exanthema Evanidum | 1 |
| Icterus | 8 | Purpura | 1 |

ACUTE DISEASES.

| | No. | | No. |
|---|---|---|---|
| Iritis | 1 | Cholera | 1 |
| Opth. Tarsi | 1 | Dysuria | 5 |
| Ophth. Purulenta | 1 | Abortus | 1 |
| Otalgia | 1 | Febris Infantum | 14 |
| Dentitio | 5 | Variola | 3 |

| | |
|---|---|
| Ptyalismus - - | 3 |
| Cynanche Parotidæa - | 2 |
| Cynanche Tonsillaris - | 1 |
| Catarrhus - - | 4 |
| Pleurodyne - - | 3 |
| Pleuritis - - | 3 |
| Bronchitis A. - - | 2 |
| Hæmatemesis - - | 1 |
| Colica - - | 4 |
| Colica Pictonum - | 1 |
| Synochus - - | 15 |
| Typhus - - - | 5 |
| Rheumatismus A. - | 8 |
| Contusio - - | 1 |
| Absorb. inflammata - | 1 |
| Erysipelas - - - | 3 |
| Gangræna - - - | 2 |
| Total | 658 |

It is an old remark of medical authors, that different seasons are marked by peculiar diseases, and that every other affection will, to a certain degree, be influenced by the prevailing epidemic. The present Table affords a remarkable confirmation of this doctrine. The disorders which had spread so widely through the three first months of the year, almost entirely disappeared in April; when the weather, though still changeable, was upon the whole very much milder than it had been for some time. Its variableness however, and the quick and sudden changes which succeeded the severe winter, were favourable to rheumatic attacks; and those individuals were more especially liable to them, who were already suffering under dyspepsia. In several of these, decided rheumatism occurred; but in very many, there were severe though transient pains. The treatment, for the most part, was directed to the establishment of the general health. The medicines usually appropriated to rheumatism as sudorifics, colchicum, &c. were either useless or injurious.

Affections of the head, as in the corresponding quarter of last year, have been frequent, but not upon the whole very severe. In some cases, bleeding, both general and local, was necessary, more commonly the latter was sufficient. It is too usual in these disorders to employ purgatives very largely, without any regard to the dyspeptic symptoms, which almost always succeed, and very often accompany them. Among the reported cases, several aggravated by this plan were remarked, which quickly disappeared under the use of mild tonics and alteratives.

The same remark regarding purgatives may be extended to dyspepsia, in which, since Dr Hamilton's publication, they have, by many practitioners, been largely and imprudently employed. I have seen an old woman, who was rather in want of nourishment than of depletion, brought to death's door by their unmerciful operation. The most successful plan, where the bowels are costive, in the Dispensary, has been a combination of bitter tonics with neutral salts, especially the sulphate of potash, so as to ensure two or three free but not very relaxed dejections daily. Occasional active purgatives were not attended with an equally good effect.

Phthisis pulmonalis is always a common disease in large towns; several of those in the Table appeared a consequence of amenorrhœa.

The first symptoms were precisely such as characterize this complaint,—as disorder of the primæ viæ, pains in the legs, swelled ancles, &c. but very quickly indications of ulceration in the bowels were manifest, to which, in a short time, a hacking cough and hectic fever succeeded. The progress of such cases is usually very rapid, and death ensues before there has been time for much emaciation. Dissection, in every instance, where examination has been made, has shown the mucous coat of the alimentary canal extensively ulcerated, and the ulceration has very frequently occupied the larynx and bronchial tubes.

One of the cases of hypochondriasis had been of several months duration, and during that time had been treated by palliatives, as ammonia, spirits of lavender, &c. After freely but not violently evacuating the bowels, cold water poured from a considerable height upon the head completely removed it. It would be very desirable to ascertain what are the proper cases for this practice; for nothing is more certain than that there are many persons, who appear fit subjects for it, to whom it is decidedly injurious. Like every other remedy of great power, it bids fair for getting into disrepute, from its indiscriminate employment. The best plan at present, till further experience may give more certain directions, is to be extremely cautious at first, and to increase it, as the strength of the patient permits, and the relief afforded encourages.

It has been insinuated by some of the Journalists, that amidst the numerous successful cases of Tic Douloureux published by Mr Hutchinson, other diseases may have been mistaken for it. However this may be, several opportunities have been afforded me, of proving that the efficacy of the carbonate of iron in relieving pain, is not confined to that complaint. A case of regular intermittent hemicrania was entirely cured by it, and much relief was conferred upon a case of syphilitic rheumatism, in which the pains came on most severely in an evening. Great alleviation also was effected in an instance of rheumatic gout of long standing, in which the joints were red and swelled. The visible effect upon the digestive organs was similar, very great improvement in the appetite and spirits. In one case, accompanied with hysteria, the nervous symptoms and the pain vanished together.

The cases of marasmus have been numerous, and upon the whole successful. In one instance, great benefit ensued from the employment of the tartarized antimonial ointment rubbed upon the abdomen.

## FOREIGN INTELLIGENCE.

*Scurvy endemic in the Bicetre.*—In our last Number we inserted the Parliamentary Report on the production of scurvy in the Penitentiary at Milbank. The following observation, which we translate from a paper on Water-kanker by Dr Klaatsch, adds another proof of the generation of scurvy in prisons. In marking the diagnosis, he says, " In the Bicetre, for example, where, in the department of Dr Pariset, scurvy is endemic in its most disgusting forms, the water-kanker has never been observed. And here certainly the greatest dissolution of the fluids occurs, as most of these patients have been long confined, and their residence and diet are miserable in the highest degree. "—*Hufeland's Journal, January* 1823.

*Transposition of the Viscera.* (*Journ. Univers. Avril* 1823.)—" I know not," says M. Scoutetten, " whether I have been favoured by chance, or whether visceral transpositions are more frequent than we generally imagine; but it is remarkable, that I have met with three examples of the kind in less than a single year." All the subjects were young soldiers, who had passed their twentieth year, were of a good constitution, and enjoyed excellent health, till they were cut off suddenly by gastro-enteritic inflammation. In one of them, the transposition of the chief viscera had been detected during life. The anatomical details present nothing remarkable, except the extreme precision with which the viscera of the opposite sides occupied the places of one another. The arteria innominata supplied the left arm and left side of the neck; yet one of the men was well known to be right-handed. In all of them, " the vertebral column turned the concavity of its lateral curvature to the right instead of the left side;" a fact, which Scoutetten thinks will contradict the notion of Bichat, that the ordinary curvature of the spine to the left side depends not on the situation of the aorta, but on the habit of using most frequently the right hand.

*Fatal Hemorrhage from Rupture of the Fallopian Tube.* (*Ibid.*)—A woman, who lived on bad terms with her husband, one evening, during a violent quarrel, threw a chair at him with all her force. Early next morning, she was seized with violent colic and frightful vomiting and purging. These symptoms were followed by swelling of the belly; and she expired in the midst of horrible convulsions, after thirteen hours illness. Not long afterwards, a suspicion arose of her having been poisoned; the body was disinterred ten days after death, and carefully examined by order of the proper functionaries. It was quite fresh, without lividity, or contusions. All the organs in the chest and head were healthy, and so was the whole tract of the alimentary canal; but the belly was distended with serous fluid and enormous clots of blood, amounting to more than eight pounds. After a deliberate and careful search, the dissector at last found, that the hemorrhage had proceeded from an oblong, irregular, fringed perforation, an inch in circumference, situate on the right Fallopian tube, near its attachment to the uterus. He does not appear to have searched for the torn vessel or vessels which had yielded this enormous quantity of blood. As the woman was nursing at the time of the accident, it is very likely that the tube ruptured was the one through which the last ovum had descended, since it preserves its tenderness and great vascularity for some time after delivery.

*Hydrocyanate of Iron in Morbid Urine.* (*Archives Générales de Médecine, Mai* 1823.)—Dr Julia of Paris has recently discovered this salt in the urine of an old man, " affected with an acute disease of the urinary passages." The urine was very viscous, frothed when shaken, had a deep blue colour, and deposited a thready sediment of the same tint. It reddened the vegetable blues, did not decompose in three days, yielded blue flakes when heated, and, after evaporation and cooling, formed a gelatinous mass soluble in water, and precipitating abundantly with tannin. The fluid part of this urine, therefore, contained much albumen and gelatin; but very little urea could be detected. The thready sediment weighed, after desiccation, about seven grains and a half. A few drops of potass, soda, or lime water, added either to this deposite, or to the blue flaky matter thrown down by heat, or to the blue urine itself, speedily decolorized it; and the blue colour was at once restored on the addition of a little sulphate of iron. Dr Julia was unable to determine what principle imparted solubility to the hydro-cyanate. He observes, that he has since had an opportunity of examining another sample of urine, exactly the same in nature and properties; and that a similar case occurred to a friend of his at Montpellier.

*Spontaneous Perforation of the Stomach and Oesophagus.* (*Journ. Universel. Mai,* 1823.)—This Journal contains an account of two good examples of this most inexplicable phenomenon. In one case, death arose apparently from subacute pneumonia, and corresponding appearances were found in the lungs; but the stomach was also perforated at its lesser curvature, and extensively eroded near the pylorus. In the other, the only symptoms observed during life, corresponded with the perforation of the œsophagus found after death, viz. pain at the root of the neck, difficult deglutition, and laborious breathing. The whole fore and back surfaces of the lower third of the œsophagus were destroyed, so that nothing remained but two lateral cords; and the stomach was entirely divested of its villous coat, and pierced at the middle with two holes, one as large as a half-crown piece. It is evident, that the former of these cases accords best with John Hunter's views of the nature of such perforations, while the latter rather corroborates the opinion of Professor Chaussier, who regards them as the consequence of a peculiar disease. The author of the cases, in a short but most pernicious commentary, ascribes them to the prolonged use of gin and corrosive sublimate!!

*Spontaneous Combustion.* (*Journal Compl. du Dictionnaire, &c. Juin* 1823.)—Though this singular incident has ceased to be a novelty, yet the following case is so striking, chiefly on account of the evidence establishing it, that a short notice of it may not be unacceptable. In almost every circumstance it agrees perfectly with those which have been related by former observers. The particulars were collected under legal authority by MM. Colson and Lelarge, practitioners at Beauvais, where it happened. The subject was a very tall fat brewer, long addicted to excessive drinking. At twelve on the evening before the accident, a woman of the house ascertained that he was in bed, and his candle extinguished. Next morning at eight, a thick smoke being seen to issue from his apartment, the door was burst open, and his body found stretched on the brick floor and still burning. The flame was extinguished with difficulty by the copious affusion of water. Close beside the body stood an iron pot containing a little half-consumed charcoal, and near it a straw-bottomed chair lay upset, with its bottom burnt away. Except the body and the chair, nothing else in the room was injured. The flesh of the neck was destroyed, except on the anterior part. The whole left arm and the thoracic parietes of the same side were entirely consumed; and of the right side and arm, nothing could be seen but some charred fragments of ribs, and the shoulder, the humerus, and part of the fore-arm. Both thighs and the right leg were likewise almost entirely consumed; and of the viscera of the trunk, the only remnants were the heart, lungs and liver, which, however, were all more or less torrefied. This account affords no satisfactory evidence of the spontaneous inflammation of the body; but it clearly establishes the fact, that it may acquire a preternatural combustibility.

Another case, which occurred in the neighbourhood of Bordeaux in September 1822, has been related in the last volume of the Nouveau Journal de Médecine; but though the particulars were sworn to before a magistrate, our readers will not be at a loss to discover good reasons for doubting its authenticity. A sober healthy blacksmith was returning home in company with a girl one very hot afternoon, when he suddenly felt an acute pain in the right index, and was astonished to behold it burning and smoking. He rubbed it against his thumb to extinguish the flame, but the flames caught both the thumb and middle finger. He then rubbed them on his trowsers, but burnt two holes in them; next he thrust his hand into his pocket, and set it on fire too; and finally, he happened to touch the fore and middle fingers of the left hand, when these caught fire also. In vain did he plunge them into a bucket of water; they continued to burn. In vain did he stick them in the mud; the virtues of the mud were not more potent. At last, a devout female reminding him that the faith saves us, he dipped them in holy water, and the flames were speedily extinguished. Since the well known story of the priest Bertholi (see Foderé Méd. Lég. III. 210.), this is the only instance of alleged spontaneous combustion where the sufferer has been seen during life. The most amusing part of the whole story is, that the relater doubts none of the circumstances except the efficacy imparted to the water by its sanctification.

*On Partial Dropsy.* (*Archives Gén. de Méd. Juin* 1823.) M. Bouillaud, in a memoir on obliteration of the veins, has endeavoured to show that this accident is the sole cause of partial dropsy of the passive kind. He fortifies this opinion by first relating three cases of dropsy of both limbs arising from obstruction of the vena cava or both iliac veins. In two of these cases, the obliterating matter consisted of fibrinous coagula, conjoined in one with a cancerous tumour of the rectum, uterus, and adjoining parts, in the other, with fungoid enlargement of the ovaries. In the third case, the matter filling the veins resembled the medulla of the brain, and was connected with fungoid enlargement of the right kidney. He next details four cases of dropsy in one limb arising from obliteration of its crural or iliac vein, by the deposition of a solid, reddish, fibrinous, friable matter. And finally, he describes two cases of pure ascites, uncombined with anasarca, in both of which the vena portæ was choked up with a fibrinous clot, and compressed by a tubercular swelling of the liver. M. Bouillaud adds, that the obliteration is generally the consequence of simple pressure, though, in three of his cases, he suspects it to have been caused by inflammation. From these data he ventures to infer, that general dropsy of the passive kind likewise arises from obstruction to the course of the blood through the veins, and not from general debility, as is commonly thought; and, in support of this assertion, he alleges, that it is observed only in the advanced stage of diseases of the heart, thoracic vessels or lungs, when the venous circulation is embarrassed. We believe he is quite correct in attributing partial passive dropsy to the cause assigned; but the propriety of extending the explanation to general dropsy may be questioned.* M. Bouillaud has been eminently fortunate in witnessing a number of most valuable and apposite cases; and to these he has annexed a short notice of some others to be found in books. His paper, however, is to be considered rather as expressing the general opinion and experience of the profession, than as advancing any new doctrine, or grand fact in pathology; for the connection of passive partial dropsy with obstruction of the veins is, we apprehend, familiar to all British practitioners at least.

*Pathology of Palsy and Apoplexy. (Journ. de Physiologie, Avril,* 1823.*)*—M. Serres has commenced a series of interesting papers in this Journal, on the relation subsisting between the chief symptoms of these diseases, and the seat which the corresponding organic derangements occupy in the encephalon. He has found, by referring to authors, and also by frequent personal experience, that in apoplectics, when erection of the penis is a symptom during life, or is found in the dead body, the apoplectic cell is always deep in the cerebellum; that in paralytics the loss of motion of one arm alone is connected with derangement of the posterior lobe and posterior part of the middle lobe of the brain, and paralysis of one leg with a deposite either among the anterior radiations of the corpus striatum, or in the cerebellum; and that in every case of hemiplegic palsy without exception, the cell occupies the opposite side of the brain or cerebellum. It is a prevalent idea, he observes, that while an injury of a hemisphere of the brain causes palsy of the opposite side of the body, that of a hemisphere of the cerebellum paralyzes the same side. This idea, however, he finds to be erroneous; for in three cases of marked hemi-paraplegia, he discovered a purulent cell in the opposite side of the cerebellum; and in numerous experiments on animals he invariably remarked, that an injury of a hemisphere or peduncle of the cerebellum impaired or destroyed the power of motion in the opposite side of the body. He allows that the reverse has been witnessed by others, and has the candour to quote against himself the respectable authorities of Helvetius, Plancy and Forestus. But he overcomes this difficulty by assuring us, that several years ago he did not hesitate to pronounce all their observations erroneous, and that he expects to prove them so to every body's satisfaction.

*Functions of the Spinal Cord. (Ibid.)*—Not long ago, as our readers are aware, M. Magendie found by experiment, that the anterior bundles of the spinal nerves are destined for motion, and the posterior bundles for sensation. Pursuing his inquiries farther, he appears to have established the same facts with regard to the anterior and posterior portions of the spinal cord itself. If it is touched or pricked on the anterior surface, the animal expresses acute pain; but not when the anterior surface or middle part is touched or even torn. A very remarkable case presented to him by M. Royer-Collard, is well illustrated by these facts. A man, who had long been affected with paraplegia, and for seven years had been unable to move a joint of his lower extremities, nevertheless retained their sensibility unimpaired. After death, besides other less important derangements of structure, the corpora pyramidalia and olivaria were found reduced to the consistence of pap; and the softening extended, though with progressive diminution, along the whole anterior surface of the medulla, and throughout the whole thickness of its anterior cords; but the posterior surface was every where perfectly healthy.

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* We may refer M. Bouillaud, or these who think as he does, to a curious paper by M. Gaspard in the 1st volume of Magendie's Journal, on an Epidemic Anasarca, which ravaged several departments of France after the bad crop of 1816. It was evidently *passive*, and clearly depended on general debility.

The invention of M. Magendie, and the other spinal pathologists of the French capital, have been in vain put to the rack, to account for a very singular case which has lately occurred there to an accurate observer, M. Rullier. It is detailed in the Journal of Physiology with great minuteness and apparent fidelity. We cannot spare room for a sufficient abstract of it, but shall merely give its most striking features, as contained in the reflections which Magendie has appended to the author's description. "A man, who enjoyed almost to the last hour the free use of his limbs, the sensibility of his arms, an acute understanding, and active generating faculties, had nevertheless experienced, probably for a long time, the loss of a full third part of the nervous tissue of the spine; the communication between the cervical and dorsal portions of the column was kept up, so to speak, by the membranes only; for nothing remained of the cord but a thin plate of white substance hardly two lines broad, and probably altered in its structure, while the vacuity from which the medullary matter had disappeared was filled with serosity. The upper and lower parts of the cord therefore were almost completely separated from each other by an interval of six or seven inches; yet the will governed the motions of the limbs, and the imagination stimulated the genital organs." The conjectures offered by way of explanation are of course very far from being satisfactory, even in the eye of the Professor himself.

*On the Formation of the Ovum in the Mammalia.* (*Journ. Complémentaire, &c. Avril* 1823.)—Dr Plagge of Bentheim has been lately investigating this obscure and difficult subject, by careful observation of the ovaries in the larger mammalia. He completely agrees with the doctrine of Sir E. Home and Mr Bauer (Phil. Trans. 1818), as to the formation of the ovum in the ovary before impregnation; but he thinks he has discovered, that, instead of being formed in the corpus luteum, as these gentlemen affirm, the ovum, as well as the corpus luteum, is produced in the vesicles of Graaf; and that the corpus luteum bears the same relation to the ovum in the ovary, as the placenta does afterwards in the uterus. He observed, that a little areola first appears on the membrane of the vesicle; and not long afterwards, the rudiment of the future ovum may be seen like a grey speck on the middle of this areola, and the inside of the vesicle. After the rudiment has increased till its diameter is equal to three lines (in the cow), the corpus luteum begins to appear on the peduncle of the rudiment, betwixt it and the membrane of the vesicle, and the ovum is thus gradually pushed towards the surface of the ovary, to be impregnated.

*Proximate Principles of the Blood.* (*Ann. de Chim. et de Phys. Mai* 1823.)—MM. Prévost and Dumas of Geneva, allege that they have found the blood to consist of serum, holding in suspension regular insoluble corpuscles, which are composed of a central colourless spheroid, and a sort of membranous sac, of a red colour, surrounding it. And they consider the coagulation of the blood to arise from "the attraction of the red matter round the white globules ceasing with the motion of the fluid, so that the white globules can obey the force, which tends always to unite them." The white globules are of course fibrine; and the red matter seems to them to be a kind of translucent jelly, insoluble in water, easily divided, but not capable of reunion. They have examined the proportion which the white corpuscles and red matter together bear to the rest of the blood, in a great variety of animals; and they find them most abundant in birds, next in the mammalia, especially the carnivorous mammalia; and they are least plentiful in the cold-blooded animals. In man they constitute about 129 parts by weight, per thousand. They are more abundant in arterial than in venous blood: one thousand parts of the arterial blood of the sheep, dog, and cat, contain 10 parts more of these particles than blood taken from the veins. The serum is identical in both. Their observations are many of them very interesting: the account they give of the coagulation of the blood, is evidently nothing but words.

*Effects of the Extirpation of the Kidneys. Discovery of Urea in the Blood.* (*Ibid.*)—The same gentlemen, while endeavouring to ascertain the precise nature of the function of the kidneys, were led to observe the following singular effects, after these organs were extirpated. One kidney may be removed from dogs, cats, and rabbits (which were the only animals operated on), with little immediate, and no ultimate inconvenience. Even the extirpation of the other produces at first but little injury; the wound even heals; but in three days the animal is seized with profuse vomiting and purging of a brown liquid matter; the pulse rises to 200, the breathing becomes rapid, the heat fluctuates to the 9th degree of Fahrenheit above and below the natural standard; and death takes place betwixt the 5th and 9th day. The inspection of the body shows the effusion of serum pretty abundantly into the ventricles of the brain, slight condensation of the lungs and mucus in the bronchi, more or less inflammation of the liver and distention of the gall-bladder, and great contraction of the bladder of urine. These phenomena have been formerly noticed in part by Haller and Richerand; but have never before been so accurately determined. Not long after the extirpation of both kidneys, Urea may be discovered in the blood, as appears from the following analysis. The blood was more serous than natural. Its serum and crassamentum being dried and boiled in water, the solution was evaporated, and the solid matter subjected to the action of alcohol. The residue, after the evaporation of the alcohol, weighed twice as much as that procured from the healthy blood of the same species of animal; *and concreted into a white crystalline mass when acted on by nitric acid.* This, when purified by a simple process, furnished scales of a pure pearly-white colour, being the nitrate of urea. From this important fact, viz. that urea exists in the blood, when the kidneys have been removed, MM. Prévost and Dumas have inferred, that "the kidney is nothing more than an *eliminating* surface like the skin, and that we are still ignorant where the urea and other principles of the urine are formed." Their experiments have been confirmed by Segalas and Vauquelin.

*On the Reunion of Wounds after great Operations.* (*Archives Gén. de Méd. Juin.* 1823.) M. Lisfranc, in a very elaborate memoir on a new mode of performing amputation at the hip-joint, has observed, that to prevent consecutive hemorrhage after this and other great operations, M. Dupuytren proposes to delay the dressing of the wound for two or three hours. Lisfranc himself has found, by many experiments on animals, and some trials on man, that, when the wound is left exposed till the oozing of blood has ceased. and is then carefully wiped, immediate adhesion is much more frequent than after the usual mode of management. Hemorrhage, he adds, is always most hazardous after the wound has been dressed; time is lost in removing the dressings; they often adhere firmly to the wound, so as to cause more pain by their removal than the operation itself; and the clots deposited in the cavity of the wound, though M. Serres has found them sometimes organized, may nevertheless play occasionally the part of foreign bodies, hindering adhesion, and exciting dangerous inflammation. The practice here recommended has been for some time employed by several London surgeons, and has also, we believe, been tried in this city. It is very favourably spoken of by all who have had recourse to it. A delay, however, of half an hour, or three quarters of an hour, has generally appeared quite sufficient for the oozing of blood to cease.

*On the Preservation and Breeding of Leeches.* (*Journ. Univers. Avril* 1823.)—An interesting Memoir on this subject has been lately read by M. Noble, physician at Versailles, before the Agricultural Society of the Seine and Oise; and it appears from his experiments, that these useful animals may be effectually preserved and even bred in troughs, with the aid of a little care, and a few simple contrivances. M. Noble observes, that the great mortality among them, when crowded together in small vessels, is owing to the stronger destroying the weaker for the sake of nourishment. He therefore constructed a reservoir seven feet long, three feet wide, as many deep, with sloping sides lined with clay, supplied it with a constant stream of water, exposed it to the sun, sheltered it from the north, surrounded it with a ledge of turf, and planted rushes in one of the angles. In November 1820, he placed 2000 grey and green leeches in this trough, where they passed the winter, buried in the mud, without sustaining any loss whatever. Towards the end of spring, several young leeches were seen sticking to the old ones, and swimming round them occasionally, as if to try their strength. In August, he observed several smooth, conical holes in the mud, each of which contained a little oval cocoon, as big as that of the silk-worm, and porous outwardly like a sponge. Some of these were perforated at each end, and empty; others were filled with a transparent jelly; and the rest contained from nine to fourteen young leeches, which in a few days pierced their envelope, and swam vigorously about. M. Noble has not yet witnessed the formation of the cocoons; for as soon as the leech enters the conical holes, the water becomes muddy, and conceals their operations.

At the reading of the Memoir from which the foregoing extract is abridged, a member, M. Plancy, observed, that the formation of cocoons by the leech has been long known to the people in the department of Finistère; and that it is through means of them that the dealers who supply the capital are in the custom of stocking their ponds. The workmen dig them up from the bottom of the little muddy pools, and place them in small ponds prepared for the purpose. Six months afterwards the young are removed into larger ponds, on the edges of which cows and horses are brought to feed, for the purpose of nourishing them and hastening their growth; experience having taught the country-people, that the leech is never prolific, except after having sucked the blood of animals.

## DOMESTIC INTELLIGENCE.

*Ligature of the Subclavian Artery.*—We have the satisfaction of announcing, that, in the Royal Infirmary of Edinburgh, the left subclavian artery was included in a ligature, by Mr Wishart, on the 23d of August last, and hitherto there is every prospect of success. The subject of operation was a man of 47 years of age, by trade a porter. He had a large aneurismal tumour situate under the left pectoral muscle, and in close contact with the clavicle, attended with considerable pain and swelling of the corresponding arm. The time occupied in the operation, and in dressing the patient, was about twenty-one minutes. Three small arterial twigs were cut in the first incisions, which were immediately secured by ligature; but there was no venous hemorrhage, and the patient did not lose above a table-spoonful of blood during the whole operation. The ligature, consisting of two threads, was placed round the subclavian artery, immediately after it had passed through the scalenus muscle, and close by the tubercle of the first rib. Two of the nerves which go to form the axillary plexus were distinctly exposed; but neither the subclavian vein nor artery was seen. The artery lay deep in the wound; but it was readily embraced with the ligature, by means of the common aneurismal needle. No mechanical contrivances were required to tighten the ligature, as this was easily effected by the fingers.

As soon as the ligature was tightened, all pulsation in the tumour ceased. In the course of the day, the patient complained of numbness in the arm and hand; but the heat of the limb never sunk below the natural temperature. The aneurism gradually diminished in size, and the pain and general swelling of the limb daily subsided. On the 10th day after the operation, pulsation could be felt in the brachial artery; on the 16th day, the ligature on the subclavian came away; on the 17th, the pulse in the aneurismal arm was distinct at the wrist; and this day, the 18th from the operation, every circumstance is favourable.—*Edinburgh, Sept.* 9. 1823.

*Amputation at the Hip-Joint.*—We are also happy to announce the first performance of this operation in Scotland. It was performed here on the 2d September, in presence of Dr Abercrombie, Mr Liston, and several other professional gentlemen, by Mr James Syme, Fellow of the College of Surgeons, and Lecturer on Anatomy in this city. The subject was a lad 19 years old, affected for the last two years and a half with necrosis of the whole left thigh-bone. The bone had acquired an enormous thickness, several fistulous sinuses were discharging matter profusely at various parts of the thigh, and the lad was reduced to an extreme state of emaciation, before he would consent to the removal of the limb. The plan of operation was that of M. Lisfranc,* slightly modified. It was completed in a very short space of time, no untoward accident occurred, and little blood was lost, although, as may easily be imagined, the number of vessels which had to be secured was unusually great. For 36 hours afterwards, the patient suffered from severe and incessant vomiting, which, however, was removed by appropriate treatment before the close of the second day. On the fourth, the dressings were changed; on the fifth, several clots of blood were discharged; and the wound looked well. Since then it has been daily improving, the suppuration is moderate and healthy, the lad's appetite, pulse, and strength are good, and altogether the case holds out the most flattering prospects of ultimate recovery. We hope to communicate the particulars more minutely in our next Number.—*Sept.* 18*th.*

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* Archives Générales de Médecine, Juin 1823.

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### *Medical Graduations at Edinburgh.*

On Friday, 1st August, the Senatus Academicus of the University of Edinburgh, conferred the degree of Doctor in Medicine on the following Gentlemen (93 in number), after they had gone through the appointed examinations, and publicly defended their respective Inaugural Dissertations:—

*Of Scotland.*

Matthew Baillie, . De Apoplexia Sanguinea.
Francis Farquharson, — Enteritide.
George Innes Gunn, — Angina Pectoris.
Andrew Henderson, — Vulneribus.
Robert Johnston, — Hydrocephalo.
Robert Lorimer, . — Frigoris Effectibus in Corpus Humanum.
Pat. John M'Farlane, — Febre Puerperali.
John Macredie, . — Varietatibus Pulsus.
Patrick Miller, . — Hydrope.
John M. Pagan, — Syncope Anginosa.
James Russell, . — Ottorrhœa.
Geo. Somner Seton, — Phthisi Pulmonali.
William Sharpey, — Ventriculi Carcinomate.
Martin Sinclair, — Dyspepsia.
John Smith, . — Insania.
William Warden, — Hepatitide.
Alexander Webster, — Febre Puerperarum.
John Wilson, . — Dysenteriæ Pathologia et Cura.
James Wilson, . — Febre Flava.

*Of England.*

George F. Albert, — Morbis Ætatum.
Andw. Wood Baird, — Erysipelate.
Jas. Lomax Bardsley, — Rabie Canina.
William Bell, . — Arthritide.
Wm. Millet Boase, — Phrenitide.
John Bourchier, — Hæmorrhagia Pulmonum.
John Brown, . — Febribus Intermittentibus.
Joseph Bunny, . — Venarum Inflammatione.
Ynyr Burges, . — Syphilidis Origine
Darwin Chawner, — Tetano Traumatico.
Henry G. C. Clarke, — Sanguinis Circuitu.
Charles Cordeaux, De Scarlatina.
Thomas Cox, . — Enteritide.
James Dunlap, — Fracturis Simplicibus.
Hy. Anderson Dyer, — Syncope Anginosa
Robert Ferguson, — Vita Sanguinis
Aug. F. Goodridge, — Erysipelate.
John Greeves, . — Hydrope.
Alex. John Hannay, — Tartratis Antimonii Usu Externo.
Godfrey Higgins, — Sanguinis Circuitu.
Thomas Hodgkin, — Absorbendi Functione.
William Kent, . — Ambustionibus.
George Lubbren, — Pneumonia.
John Manley, . — Cataracta.
J. Berg. Matthews, — Enteritide.
Wm. Holbrook Peat, — Inflammatione Jecinoris.
William Rawes, — Rheumatismo Acuto.
Henry Ryley, . — Contextu Generis Humani Cutaneo.
William Rolfe, . — Pertussi.
Sam. Henry Smith, — Dysenteria.
Richard Waring, — Inflammatione.
John Whatley, . — Hepatitide.
John Whitsed, . — Fabrica Cordis Vitiosa.
William Whitworth, — Podagra.
Wm. Thos. Williams, — Febre Continua.

*From Wales.*

Robt. Brisco Owen, — Pneumonia,
Lewis Powell, - — Rheumatismo.

*From Ireland.*

John Wm. Barry, — Hydrocephalo Acuto.
Edward W. Bennet, — Febre Puerperarum.
Wm. B. Bingham, — Venæsectione in Febribus Continuis.
George Buchanan, — Apoplexia.
Dennis B. Bullen, — Pathematum Ratione.

Julius Casement, De Rheumatismo.
Wm. H. Crawford, — Apoplexia.
Michael Gilligan, — Strictura Urethræ
E. B. Harman, . — Ascite.
John Heron, . — Peritonitide.
John Hyde, . — Dysenteria.
Gordon Jackson, — Frigida Affusione, in Febribus, cum Observationibus de Comitatûs Meath Epidemicâ, apud Navan annis 1816–17.
Samuel Miller, . — Erysipelate.
William Nugent, — Rheumatismo Acuto.
Daniel O'Donovan, — Enteritide.
Thomas O'Maley, — Febre Continua.
George Pearse, . — Scarlatina et ejus Sequelis.
Patrick Pope, . — Dyspepsia,
Francis Powell, — Assimilatione Ciborum.
Thomas Power, -- Gonorrhœa.
James Roe, . . — Vermibus Intestinorum.
Charles St John, — Dysenteria Indiæ Occidentalis.
John Ryan, . De Dysenteria.
William Jas. Shiell, — Pneumonia.
Matthew Stewart, — Mucosæ Membranæ Intestinorum Inflammatione.
Thomas Ward, . — Hepatitide.

*From Jamaica.*

Philip Anglin, . — Ciborum Concoctione.
James Lewis Davy, — Erysipelate.
Andrew Dunn, . — Iritide.
John Falconer, . — Scarlatina.
Gilbert Lyon, . — Pneumonia.
Alexander Urquhart, — Aëris in Morbos Effectibus.

*From Dominica.*

Alexander G. Home, — Scrofula.

*From St. Christophers.*

Jas. E. Ash Sadler, — Phthisi Pulmonali.

*From Demerara.*

James H. F. Boter, — Menhorrhagia.

*From Trinidad.*

Thomas Murray, — Enteritide.

*From the United States.*

Sam. Geo. Morton, — Corporis Dolore.

*The Medical Lectures of the University of Edinburgh for the ensuing Session, commence on Wednesday the 29th of October.*

Dietetics, Materia Medica and Pharmacy, by Dr Duncan, *Junior*, at 8, *a. m.*
Practice of Medicine, Dr Home, 9, *a, m.*
Chemistry and Chemical Pharmacy, Dr Hope, 10, *a. m.*
Institutes of Medicine, Dr Duncan, *Senior*, and Dr Alison, 11, *a. m.*
Hospital, 12, *noon.*
Anatomy and Pathology, Dr Monro, 1, *p. m.*
Military Surgery, Dr Ballingall, 2, *p. m.*
Midwifery and Diseases of Women and Children, Dr Hamilton, 3, *p. m.*
Principles and Practice of Surgery, Dr Monro, 4, *p. m.*
Clinical Medicine, Dr Graham and Dr Alison, 4, *p. m.*
Clinical Surgery, Mr Russell, 5, *p. m.*

During the Summer Session, Lectures will be given on the following Branches of Medical Education:—

Botany, Dr Graham.
Midwifery, Dr Hamilton,
Clinical Medicine, Dr Home.
Clinical Surgery, Mr Russell.
Medical Jurisprudence, Dr Christison.

Dr W. P. Lauder, *Fellow of the Royal College of Physicians, and Physician-Accoucheur to the Edinburgh New Town Dispensary*, will commence his Winter Course of Lectures, on the *Theory* and *Practice* of *Midwifery*, and the *Diseases* of *Women* and *Children*, on Wednesday the 12th of November, at three o'clock, *p. m.*, in the Anatomical Theatre, No. 4, Surgeon's Square.

13 *York Place, September* 1823.

*London, St George's Hospital.*

Dr Pearson's Lectures on *Physic*, and Professor Brande's Lectures on Chemistry, will recommence as is usual, the first week of October next. Attendance at St George's Hospital, with Pathological Demonstrations, as in former years.

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Printed by J. Hutchison,
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